Section Four Floodplain Management Forum Statements

Improving Flood-Hazard Identification

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The background information distributed for this Floodplain Management Forum indicates that the National Flood Insurance Program prevents an estimated $1 billion per year in flood damage, but that annual damages due to flooding continue to rise. Changing this trend will require improvements in how flood hazards are identified and perceived and more effective floodplain management at all levels of government. My comments today are directed to how we can improve flood-hazard identification and convey the information to the appropriate public officials and individual property owners so they can make informed decisions about flood hazards.

The keys to flood-hazard identification are adequate, accurate and timely data about floods and tools for displaying statistical information in a meaningful way so the affected parties understand the hazard. Much of the data used for flood-hazard identification are from the streamgaging stations operated by the U. S. Geological Survey (USGS) in cooperation with more than 800 Federal, State, and local government agencies. The flood data collected at the 7,000 stations in the current network and the 11,000 other stations that have been operated in the past represent a wealth of information about floods, but the data are not adequate for identifying all flood hazards. A 1998 report to Congress, "A new evaluation of the USGS streamgaging network," determined that only about one-half of the communities in the National Flood Insurance Program (NFIP) had current or historical flood data available for determining base flood elevations and delineating the floodplain. Another deficiency is that the systematic record of floods represents a small part of the continuum of floods on our Nation's streams and rivers. We have numerous examples of flood frequency distributions and the associated one-percent chance floods that have changed as more data became available. The systematic record of floods also is affected by land use changes. The flood regimes of our rivers changed as forests were cleared for crops and pastures; they changed again as farmland was replaced by urban and suburban development.

The USGS has proposed a National Streamflow Information Program to meet the Nation's water information needs for the next century. This program, if funded, will address many of the information needs of the NFIP; it would include more Federal funds to support streamgaging stations used by the National Weather Service (NWS) for flood forecasting, more timely assessments of flood characteristics, new tools for improving flood inundation mapping, and an enhanced flood information delivery system. The funding for the streamgaging program would provide additional data for determining the base flood discharges and flood levels for NFIP communities covered by the NWS forecasting program. The assessments of streamflow information, which are proposed at 10-year intervals, would provide more accurate methods for estimating flood characteristics of streams and rivers in NFIP communities that do not have

historical flood information. The assessments also would enhance our ability to estimate changes in flood characteristics caused by various land use changes. The tools for improving inundation mapping include better models for defining base flood levels, delineating the flood boundaries, and identifying areas that will be subjected to high velocities and debris accumulation during floods. The new models would utilize higher resolution elevation data derived from Lidar. Tools also would be developed to convey flood inundation information rapidly to the public via the Internet. A robust information delivery system would ensure that critical river stage and discharge data would be delivered to the National Weather Service and emergency managers and that real-time flood inundation maps would be delivered to affected communities.

Displaying flood inundation maps on the Internet and television has great promise for educating the public about flood hazards. Many people that live in the floodplain are unaware of the flood hazard because they did not live there during the last major flood and have never seen a flood insurance rate map. By showing both the areas that will be inundated and the 100-year floodplain each time the National Weather Service issues a flood forecast, the public would be become more cognizant of the flood hazard. It might also be very useful to show the areas behind levees that would be flooded if the levees failed. People living behind a floodwall or levee think they are safe, but someday a flood that is bigger than the design flood will overtop the levee. Increased awareness of flood hazards may increase public support for better floodplain management. At the very least, people living in the floodplain will be more receptive to purchasing flood insurance.

In summary, enhanced flood information can serve to improve risk perception and change behavior. It can help communities and their citizens make good decisions that will prevent loss of life and decrease property losses during floods. Plans for enhanced flood data and information delivery developed by the USGS and others, if implemented, will decrease flood losses. The USGS is pleased to participate in this discussion, and we look forward to working together on this important activity.

W. Dave Canaan
Director, Mecklenburg County Storm Water Services

First, I would like to thank you for the opportunity to participate in the Floodplain Management Forum. I believe this will be a valuable exercise to start a long process of turning the tide on how this nation views floodplain management.

Below, I have listed the main points of my statement that I will be making to the Forum participants concerning flood hazard identification and floodplain management. I am choosing this method to clearly communicate my key points pertaining to two of the three components of the program. I am not as familiar with the issues concerning flood insurance, and therefore reserve comment.

Flood Hazard Identification:

- ***Communities should recognize floodplain maps as a community safety responsibility.*** The time has come for communities and states to stop solely relying on FEMA to provide all of the floodplain maps and related data. Proper floodplain mapping is a life-safety issue - similar to fire, ambulance and police services. Therefore, communities and states need to identify stable funding alternatives (storm water fees, building permit premiums, impact fees, etc) to develop and maintain floodplain maps.

- ***FEMA should be so committed to updated maps and CTC that the agency is willing to vary its role.*** Conversely, FEMA and its technical contractors need to embrace flexibility and start to understand and meet the needs of the local communities. With greater reliance on communities and states to perform these flood hazard studies, FEMA will have to vary its role (sometimes coaching, sometimes technical advisory and sometimes just getting out of the way…). Recent experience with FEMA has shown that they (again, including the technical contractors) are compliant with the Map Modernization and Cooperating Technical Communities concepts, but they are not committed. I am disappointed with the experience of Charlotte-Mecklenburg trying so hard to give FEMA, and the users of the map, pertinent data (free-of-charge) to make informed land use decisions. Instead, we have been met with policy hurdles and compared to "standards" that never seem to get out of committee.

- ***Local government should recognize accurate floodplain mapping as an investment.*** Charlotte-Mecklenburg has accepted the responsibility for floodplain mapping. Charlotte-Mecklenburg Storm Water Services (CMSWS) is in the process of re-mapping all of the 310+ miles of regulated floodplain. The project cost (modeling only) is approximately $1,200,000 – 40% federal/state funding and 60% local funding. To put it in perspective, that is $1,000,000 less than the match Mecklenburg County has to contribute toward the purchase of 116 structures in the floodplain!! In essence, mapping projects are a much better deal than acquisition projects!!

- ***Floodplain mapping is based on an actual science.*** I believe there has been a recent shift to concentrate more on the political or "business" side of floodplain management than the

science. With improved technology, it should be cheaper to collect, manipulate and model data for better decisions in the future. Items of interest that were identified in the re-mapping experience in Charlotte-Mecklenburg are: (1) when using future land use conditions, flood heights went up as much as 4.1 feet (on average) and (2) the cumulative effect of a 1 foot encroachment to establish floodway districts is actually a 2.3 feet increase in flood height. The following are issues related to the "science" of floodplain mapping:

A. Data collection and analysis is needed. There needs to be a concerted effort to fund the USGS's gaging network to operate and maintain a base-level network of rainfall and stream flow gages across the US. It doesn't matter if we are protecting to a 100-year or 500-year flood if nobody is collecting and analyzing the data to know what is a 100-year and 500-year flow.

B. Mapping is a decision-making tool for future land use. Mapping should be based on future conditions. Insurance does not have to, but if there is an adopted land use document that identifies what the future has in store for the community – then we should feel the obligation to try to understand the extent of the floodplain under future conditions. As a Project Impact community, Charlotte-Mecklenburg has embraced the disaster-resistant principle that acting now will dramatically reduce our future threats.

C. Our diverse communities have different floodplain management issues. We need to stop the "one size fits all" approach. With appropriate mapping, the community or regions of a state can determine the sensitivity of development in and around the floodplain. The community, based on good data, can engage the development community in discussions to determine the amount of floodplain to be developed, if any, in comparison to the minimum freeboard. The selection of arbitrary encroachment/freeboard values or people running around proclaiming "*no development in the floodplain*" can be replaced with case studies per region/state to make the regulations more meaningful and effective. "*No development in the floodplain*" is a meaningless statement if you first do not know where the floodplain lies!!

<u>Floodplain Management</u>:

- ***The development community must have some accountability.*** The design engineer needs to accept responsibility for the location and elevation of a structure in and around the floodplain. Flood data is probably the only site-specific data that is provided by a community, state or federal government. The engineer should be required to verify that it is still reasonable to use the flood data. If the maps are old and/or out-dated, the developer should bear the responsibility of determining the correct elevation and location - or locate the facility well above the minimum requirements of the floodplain ordinance.

- ***Laws should be enforced to make sure communities identify their risks before attempting to mitigate them.*** It is my understanding that the Stafford Act requires the development and adoption of mitigation plans before a community can receive hazard mitigation grant funds. However, I am not sure that is being enforced. If it is not required in the Stafford Act,

FEMA should require local communities to evaluate their exposure to losses and identify actions that are necessary to reduce the risk of future losses.

- ***Strict policy decisions are needed to make communities and individuals assume their responsibility.*** Currently, there are no disincentives to make individuals and communities stop ignoring their exposure to losses. The less proactive stance a community takes today, can result in a greater amount of federal assistance in the future. The withholding of disaster funds until mitigation plans have been approved would likely entice a community to address its exposure to flooding. Similarly, the payment of actuarial-based flood insurance premiums and withholding of disaster assistance from individuals would likely entice property owners to take responsibility for reducing their exposure to losses. Unless drastic, albeit unpopular, policy decisions like these are made, there will not be any incentives for states and communities to take responsibility for their flood exposure.

Again, thank you for the opportunity to share my thoughts with you and the Forum participants. Some of the above comments may appear pointed and harsh, but I feel that they are being shared in an open, professional manner. I believe they will be accepted by FEMA in that same manner.

Christopher P. Jones, P.E.
American Society of Civil Engineers

I have several comments on and suggested changes to the NFIP. My primary focus is on coastal issues, but some of my comments and suggested changes will pertain to the program as a whole.

Flood Hazard Identification

- *Should the mapping of floodplains based on a higher standard, such as the 500-year standard?*

In most cases, No. The 100-yr floodplain is an appropriate standard for much of our floodplain development. However, a higher standard may be appropriate for certain types of development (e.g., critical facilities). One way to differentiate between types of development is to classify them according to their importance, and to regulate the more important structures to a higher standard (usually by requiring freeboard and/or different foundations). This is the approach used in the recently completed ASCE 24-98 (*Standard for Flood Resistant Design and Construction*).

I believe much of the damage to post-FIRM structures is due to regulatory minimums which encourage damage during the base flood event -- these can be addressed by means other than regulating all new construction to a higher standard.

Finally, while I believe it is useful to map areas subject to a 500-yr flood event, this is not always done during Flood Insurance Studies. Regulating to the 500-yr flood will require considerable effort to restudy and remap many communities.

- *Should mapping be based on future conditions, accounting for urbanization and coastal erosion?*

I believe flood hazard mapping should delineate areas subject to coastal erosion (the regulation of those areas through the NFIP is a separate issue, which may be difficult to achieve). The identification of these erosion prone areas will provide important information to communities, property owners, and prospective purchasers. In short, I am in favor of disclosing known hazards, whether or not NFIP regulations follow.

- *Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the hazard identification and mapping?*

With regard to coastal flood hazards, No, for two reasons: 1) coastal erosion is not yet mapped (see responses to questions above and below this response); and 2) Coastal High Hazard Areas (V zones) shown on FIRMs may not capture all the areas where buildings are at increased risk during coastal flood events.

The premise behind the establishment of many V zones is that a 3-ft wave is the minimum wave height necessary to cause damage to a building, or that other related conditions (high velocity flow, scour and storm-induced erosion) will not occur in areas where wave heights are less than

3 feet. Recent FEMA-sponsored full-scale laboratory tests on breakaway wall sections shows wave heights less than 2 feet are capable of destroying walls and connections. Also, observations of building performance after coastal flood events frequently show damage to post-FIRM buildings in coastal A zones, constructed in compliance with NFIP requirements.

Rather than defining a new boundary for the V zone, I recommend a simpler approach -- classifying certain A zones as *Coastal A Zones* (i.e., differentiating between coastal A zones and non-coastal [e.g., riverine] A zones). Increased design and construction requirements should be attached to the Coastal A Zone designation (see response to Floodplain Management question on coastal hazards).

Flood conditions in coastal A zones are usually closer to conditions experienced in V zones than those experienced in A zones away from the coast -- our mapping and regulatory requirements should reflect this distinction.

- *Are there methods of identifying flood hazards other than the traditional mapping approach?*

Regarding coastal erosion, the traditional approach used by many states and communities is to map a future shoreline position based on a long-term, average annual erosion rate (e.g., 1 ft/yr, 3 ft/yr, etc.) applied over a specified time period (usually 30 years to 60 years). We commonly report these erosion rates with the implication that future shoreline positions will follow the stated linear trend. This is rarely the case. Erosion rates at a given site can vary through time, and a single rate may not provide the information needed to properly evaluate the vulnerability of a given site.

If the NFIP maps coastal erosion, I am in favor of showing an erosion hazard area that reflects the uncertainty in the prediction of future shoreline positions. I recommend we move away from the exclusive use of long-term, average erosion rates to communicate the erosion hazard at a particular location. Instead we should consider showing a band, rather than a line, to indicate the likely shoreline position at some specified time in the future, or we should consider mapping the most landward expected shoreline position over some defined future period. These approaches would take erosion rate uncertainty and non-linear shoreline change trends into account.

Floodplain Management

- *Should freeboard be required above the base flood?*

Freeboard should be encouraged in all cases, but required for more important classes of buildings.

In the case of A zone structures, the reference elevation for the lowest floor should be changed from the top of the floor to the bottom of the lowest horizontal supporting member. I do not understand the application of a top-of-floor requirement that guarantees flood damage during the base flood. The CRS gives communities credit for adopting the lowest horizontal supporting member requirement for A zones, but I believe this approach does not go far enough.

- *Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the regulatory requirements?*

As was stated previously, present flood hazard identification methods and floodplain management requirements understate the risks to development in many coastal A zones. More stringent elevation, foundation and other requirements should be instituted by the NFIP for these areas. For example, it is ludicrous to allow fill or solid walls to be used for structural support in Coastal A Zones -- pile or column foundations should be employed in these areas.

The Coastal A Zone concept is already taking hold. FEMA's recently revised *Coastal Construction Manual* provides recommendations for designers, building officials and others regarding appropriate design and construction practices for Coastal A Zones (see Table 6.1 of the *Revised CCM*). ASCE 7-98 (*Minimum Design Loads for Buildings and Other Structures*) requires designers to consider different load factors and load combinations for coastal A zones and non-coastal A zones. As communities adopt the *International Codes*, the ASCE 7-98 provisions will be in place. As communities use the *Revised Coastal Construction Manual*, many Coastal A Zone recommendations will define best practices.

- *What strategies can be developed to encourage communities to adopt hazard mitigation plans or comprehensive plans and policies that steer development out of floodplains?*

It has been my experience that the single hardest thing for a community or state to do is to prohibit development in floodplain areas. We can encourage all we want, but the fact remains it will be difficult to prevent further development of floodplains or remove the development that exists there today. I believe we would be better served by the accurate identification of the most hazardous floodplain areas, and by modified financial incentives/disincentives (e.g., flood insurance premiums, deductibles and payments, disaster assistance) associated with development therein.

Insurance

- *Is the current flood insurance rating model sufficient, or are there other methods to rate the flood risk?*

The data used to establish depth-damage curves (and flood insurance rates?) for V zones are out-of-date and should be re-examined.

Claims data should be examined to determine different depth-damage curves and insurance rates for Coastal A Zones and non-coastal A zones. Data for the two areas are mixed at present, and the resulting depth-damage curves and insurance rates are probably biased toward non-coastal A zones.

Finally, consideration should be given to the collection of more detailed and accurate flood claims data by adjusters, from which improved depth-damage curves and insurance rates could be derived. My review of a limited number of coastal flood claims data suggests the quality of the data is not adequate and could be improved greatly.

Attachment to Statement by Christopher P. Jones, P.E.
Floodplain Management Forum, June 8, 2000

Table 6.1 (Summary of NFIP Regulatory Requirements for V Zones, Coastal A Zones and A Zones, and CCM* Recommendations for Exceeding the Requirements)

*Taken from FEMA 55, *Coastal Construction Manual: Principles and Practices of Planning, Sitting, Designing, Constructing and Maintaining Residential Buildings in Coastal Areas*, Federal Emergency Management Agency, Mitigation Directorate, Washington DC, 2000.

M. Rita Hollada, CPCU, CIC, CPIA
Chairman, Flood Insurance Producers National Committee

I have chosen to view the issues to be discussed today from a local rather than a national perspective. I speak as an insurance agent who has spent years helping the individuals of my community recognize and understand their exposures to loss. Water damage, like damage by wind and fire, is assuredly one of the risks faced regularly by the members of my community and all others throughout this country. And yet, so few people anticipate and insure the flood risk. The solution to increasing the level of protection against flood risks lies in three key points: education, simplification and rewards to individual property owners.

I applaud the FEMA initiatives such as Project Impact, CRS Communities and the Cover America Program which have resulted in strengthening the awareness of the flood risk in communities throughout the country. Now it is time to get personal and educate each and every individual insurance agent and property owner that the danger of water damage is real for them, regardless of location! Water is everywhere. One of the biggest stumbling blocks to awareness may simply be the use of the word flood.

The word "flood" inspires images of a swollen river, not a swollen street. Flood evokes visions of a violent, storm driven sea, not the hillside gushing water from a violent downpour. FEMA and the NFIP talk about "floodplains", not the low-lying end of a neighborhood cul-de-sac. The news media discusses one hundred and five hundred year flood levels, not water levels from blocked storm drains and culverts. Average people like you and I sit back smugly and say " it can't happen to me" because I don't live on the river or near the ocean.

We need to expand the image of flood to water damage that occurs anywhere and everywhere from a variety of sources. Educate the average property owner through community awareness programs. If we can have a "neighborhood crime watch," why not a "neighborhood flood watch?" The new Be Flood Alert brand of the NFIP lends itself to so many opportunities. Subdivisions can stencil the Be Flood Alert logo on streets and curbs near storm drains which could be blocked. Areas subject to flash flooding from storm runoff could be marked by a Be Flood Alert road sign. In fact, swimming pool shipping boxes could have Be Flood Alert symbols to remind homeowners to place the pool where a mishap won't cause a local flood.

Partner with insurance companies and agencies to take education programs into the schools. Certainly we have the models for this in the Hartford's fire prevention program and Nationwide's after prom initiative. Children will make parents alert to the danger of water damage. Educate in small, local ways and the result is flood awareness in a big way.

The second key point is simplification. The flood insurance program as it exists today is simply too complex. The maps in use are outdated and bear no relationship to a modern road map. Streets are not named and whole subdivisions remain unidentified. Obtaining an elevation certificate for each specific property is a costly and time-consuming endeavor. The flood policy itself contains language and concepts, such as voidance and reformation that are not found in the

remainder of the insurance industry. Obscure rules, like the single building rule or the 51% rule or the substantial damage rule remain incomprehensible to most agents, lenders and consumers. And when all is said and done, the consumer is rarely paid the full amount of the loss.

It is time for some creative thinking and simplification of the flood insurance mechanism. If the goal of this forum is to develop strategies that will increase the number of property owners who have some financial protection for the hazard of water damage, then lets look at possible alternatives to a bigger, more complex National Flood Insurance Program.

After thirty years of the NFIP, there must be enough actuarial data for the private insurance sector to establish a rate for the water damage exposure. We could simplify the flood insurance mechanism by including the peril of water damage in every property insurance form while charging for it based on actuarially sound rates. The coverage would not have to be for the full property value, but could be for a minimal amount such as 15 or 20 thousand dollars of coverage. The insurance industry offers a similar, limited product through the "Sewer Backup and Sump Overflow" endorsements now available in the private sector.

Since many flood claims are small in nature, covering a limited amount of water damage as any other peril in the basic property policy would give many consumers all the financial protection needed. The National Flood Insurance Program could then become an added layer for those properties with a catastrophic exposure. Since a first layer would be spread among the insurers in the private sector, this second layer could be rated based on community average elevations and the rate tables collapsed. Perhaps the coverage itself could follow the language and form of the basic property policy with regard to perils insured against, definitions and conditions. If the product itself could be simplified, there would be greater understanding, trust and confidence in the flood insurance mechanism.

The third and last of my points is to reward those who take an active part in flood prevention and control. Rating discounts and credits could be offered to individual property owners who employ flood mitigation techniques. For example, a homeowner who constructs French drains or builds a containment pond might receive premium credit. Homes built on vented crawl spaces rather than slabs would receive a policy discount. If the insurance industry can offer discounts for smoke detectors and burglar alarms, why not for water damage control.

In contrast, we can no longer afford to reward those individuals who refuse to accept personal responsibility and participate in efforts to prevent flood loss. We need to have the will to say no. My comments are in no way intended to be solutions ; they are intended to be ideas. It is time to get creative. The definition of insanity is doing the same thing and expecting different results. Let's look for innovative and different solutions to the same old problem. If we do not educate every individual regarding the risk of water damage; if we do not simplify the flood insurance product to make it easily accessible and understandable to the individual property owner and if we do not reward that individual property owner's water control efforts, then we do not have a hope of reaching the penetration and control of the flood risk that everyone in this room so desperately desires.

Larry Larson
Executive Director
Association of State Floodplain Managers

The ASFPM is pleased FEMA is recognizing that current floodplain management standards and approaches in the nation are not adequate to prevent at risk development or to create sustainable communities. The nation has made progress over the last 50 years, and especially in the last 8 years, in moving from only structural programs to adding non-structural approaches of acquisition/relocation, elevation, floodproofing and multiple objective, locally based approaches which consider the watershed and ecosystem. Despite this progress, flood losses continue to increase, as evidenced by increased disaster costs.

We provided FEMA a copy of ASFPM's recent report "A National Flood Policy in Review -- 2000" which lays out a complete approach to adjusting national policy to reduce flood losses and create ecological integrity. However, we also developed this paper to respond to specific issues in the FEMA background paper in order to assist FEMA focus its effort quickly and effectively on "do-able" changes.

First, it must be stated that any changes in how the NFIP can be a stronger agent in this process must be approached in two contexts:

A. Addressing and modifying basic development and re-development standards of the NFIP to provide a safer level of protection from flooding.
B. Addressing the role of the NFIP in the context of floodplain. The NFIP is but one part of floodplain management at the community level. The issue here should be to determine how the NFIP (and other FEMA programs) can best support comprehensive local floodplain management efforts, as discussed in the third paragraph of the FEMA paper.

The FEMA paper identifies the need to develop new strategies in 4 areas: (1) better identify flood hazard risk, (2) provide a higher level of protection against flood risks, (3) cultivate a greater sense of responsibility and accountability, and (4) encourage states and communities to foster sustainable development. While context A above (changing NFIP standards) can be used to develop strategies 1 and 2, in order to effectively develop strategies 3 and 4, the broader context in B above, involving programs beyond the NFIP must be included.

On the first context of modifying the NFIP standards, we suggest it be looked at from the position of (a) standards for new development and (b) standards for re-development and improvement. The current NFIP standards for both of these seem designed to protect the insurance fund, not to encourage the community to create sustainable development. Therefore, when locals follow the NFIP standards in guiding development, these minimal actions induce flood damages.

We will address NFIP standards in the format suggested in the FEMA paper; flood hazard identification, floodplain management, and insurance.

Flood Hazard Identification

100 year standard--We recognize that protection provided by the 100 year standard, as it is currently determined and applied, does not provide true protection to the 1% flood event. Properly determined and applied, we believe the 1% standard for most development and re-development is appropriate, and the 0.2% standard is appropriate for critical facilities and structural flood control measures. However, for the 1% standard to provide adequate protection, these changes are necessary:

- A no-rise floodway with no impact on water surface and velocity should be required, so that *only* those areas of insignificant hydraulic conveyance could be filled. Allowing cumulative filling of the floodplain until a 1-foot increase in base flood height is achieved (the current standard) causes additional flood damage on properties in the floodplain, increases downstream flood peaks, and promotes the filling of riparian zones that would be valuable natural resources if left undisturbed.

- To reduce the cost of re-mapping, minimize future damage, and improve sustainability, flood maps should be based on future-conditions hydrology unless ordinances require that there be no increase in the post-development runoff discharge compared to the pre-development discharge.

- Flood hazard maps should be developed that depict all related hazards, for example, the failure zones of all dams, levees, and floodwalls. Not only is this identification important for notification and warning purposes, but also development in these zones should have added flood protection, and flood insurance should be mandatory, with rates based on the residual risk.

- There needs to be full integration of geologic and other unique hazards into the floodplain mapping process, because land subsidence, landslides, and mudflows, as well as sediment flow, arid region flooding, closed basin lakes, ice jams and others can exacerbate flood hazards.

- We must find clearer ways to communicate flood risk so that it is meaningful to citizens and communities, thus enabling them to take appropriate steps to reduce risk and damage. The confusing terminology “100-year floodplain” should be abandoned in favor of language that is more understandable to the layperson. The ASFPM suggests using “1% chance flood.” As an alternative, the broader terms “high-risk flood” could be used for the 100-year flood and “moderate-risk flood” when referring to the 500-year (or 0.2% chance) event.

- Flood Hazard mapping must identify stormwater flooding areas. It is not reasonable to insure structures in these areas, yet not require the areas to be mapped or regulated. Stormwater programs must be integrated at the federal level with water quality programs of EPA.

- While it is tempting to try to find quick and cheap ways to identify flood hazard areas in order to reduce costs and produce maps more quickly, flood hazard mapping is the basis of local regulation of property. Private property cannot be regulated without due notice, and the maps must be defensible in court as accurate. Differences of small amounts in flood

elevations or floodway locations can mean big money to some developers, thus providing an incentive for them to fight the accuracy of the maps in court. The current process, as outlined in the Map Modernization Plan, is designed to ensure accuracy of the maps, which we strongly support.

Floodplain Management

- Consideration should be given to modifying the National Flood Insurance Program requirements so that new construction has from 1 to 3 feet of freeboard above today's estimated base flood elevation. This would acknowledge and mitigate uncertainties, account for increased runoff caused by future development, allow for the wakes of rescue boats, and provide a margin of safety for wind-induced wave action on wide flooded areas.

- In unnumbered A zones, there seems to have been a misapplication of the guidance to default to 36 inch depth

- For closures below BFE; there is a disconnect between 300 square foot insurance trigger and not size limit under 60.3 (enclosures this large encourage conversions)

- National Standards should be developed for the design and placement of infrastructure to avoid damage from flooding and other hazards. Infrastructure damages are paid for under Public Assistance after disasters, and constitute a major portion of disaster costs taxpayers cover.

- New structural measures should be built to protect not just to the 1% chance flood, but rather to the 0.2% chance flood, to avoid losses from catastrophic failure.

- There is a need for a maintenance, inspection, and safety program—similar to the Federal Emergency Management Agency's Dam Safety Program—to oversee flood control works in total.

- Flood hazard maps should depict the failure zones of all dams, levees, and floodwalls. Not only is this identification important for notification and warnings, but also development in these zones should have added flood protection, and flood insurance should be mandatory.

- Zoning below dams should be tied to failure zones to prevent low-hazard dams from becoming high-hazard dams.

- The National Flood Insurance Program should be modified to provide an insurance policy benefit for coastal erosion and mudslides only where those hazards are clearly mapped and regulated.

- Another approach in coastal areas would be the establishment of setback requirements for new construction and substantial improvements to existing construction along eroding shorelines. Residential structures would be allowed only if they are moveable.

- Under the National Flood Insurance Program, the coastal zone designations and their

accompanying construction standards should be revisited. A Zone standards are inadequate in those coastal areas now defined as overwash, or AO, Zones. These areas are not V Zones, but they still can experience up to 3-foot breaking waves and significant flow down the backside of dunes and street ends. The wave action and velocity dictate different standards for coastal A Zones and riverine A Zones. The Federal Insurance Administration recognizes the possible need to differentiate, in the insurance rates, between the two types of A Zones.

- Approvals of future coastal development should be contingent on the demonstration of adequate plans for and the ability to evacuate the at-risk population.

- Periodic reviews also should be done of state and local floodplain management policies and programs, to identify what successes have been achieved in certain states and locales, what contributed to that success, and how they could be duplicated elsewhere in the nation.

- Agricultural levees should be constructed so that they have no impact on the flood heights or the floodway of the 1% chance flood.

- The Federal Emergency Management Agency should consider identifying certain Community Rating System activities and phasing them in as additional standards and requirements for community participation in the National Flood Insurance Program.

A number of strategies could be considered to encourage communities to adopt hazard mitigation plans, etc., to steer unwise development from flood hazard areas and to encourage citizens to accept responsibility for their actions. A number of these are enumerated in our Policy Review paper, and focus on incentives which reward local communities who go beyond the minimum national standard. CRS provides some incentives to property owners, but larger incentives must be developed for communities, to spur local and state legislators and policy makers into taking actions. That usually means something that impacts them fiscally. The most appropriate mechanism, which should be tied directly to the NFIP, is the Disaster Relief cost-share.

(a) For individuals, federal financial assistance for flood losses should be based upon the individual's demonstrated willingness to mitigate the risk. The ASFPM believes that flood insurance is the best means of accomplishing this. For example, those living in identified flood hazard areas should not receive financial assistance if a flood insurance policy was not in place at the time of the flood. Additional mitigation grants should be made available to policyholders who take steps to mitigate their flood risk. The premiums on structures with repetitive losses and on those that are not primary residences should reflect the actual risk.

(b) For farmers, federal incentives and programs like the Conservation Reserve Program, the Wetlands Reserve Program, and permanent easements are vital financial assistance in the development of sustainable uses for floodprone lands. Agricultural losses constitute over half the flood damage paid for by taxpayers—amounting to billions of dollars. The trend of heavy government support, such as highly subsidized crop insurance and flood disaster payments on floodprone lands, is neither sustainable nor reasonable, especially for marginal agricultural lands that flood frequently. In addition to major losses from flooding, farming marginal land leads to pesticides, herbicides, fertilizers, and sediment polluting the nation's waters, and the resultant loss of valuable riparian ecosystems. Such

uses are not sustainable. Agricultural properties subject to repetitive flooding should be denied subsidized insurance and flood disaster payments if their owners refuse offers to purchase permanent easements.

(c) For states and localities, programs for flood control structures, nonstructural flood measures, mitigation, and flood disaster assistance should all be based on the same, sliding cost-sharing formula for federal assistance. Under this concept, a minimum cost-share would be made available to all localities but the federal share would be increased for communities and states that engage in disaster-resistant activities exceeding minimum criteria and that are implementing strong mitigation programs. After a flood disaster, Public Assistance under the Stafford Act should be withheld from the damaged floodplain areas of communities not enrolled in (or not in compliance with) the National Flood Insurance Program. The "managing state" concept initiated by the Federal Emergency Management Agency should be used as an incentive to state involvement in and commitment to mitigation, and be expanded to other programs beyond the Hazard Mitigation Grant Program.

(d) All taxpayer-funded flood disaster relief should be contingent upon taking flood mitigation action.

- The roles, responsibilities, and capabilities of the public, the various levels of government, and the private sector should be clarified and strengthened. Citizens, businesses, and local and state legislators need to better understand that the federal government will not always bail them out after a flood. They must bear their fair share of the risk.

- Public Assistance should be withheld from the damaged floodplain areas of communities not enrolled in (or not in compliance with) the National Flood Insurance Program. Today there are few, if any, economic sanctions for local governments that fail to participate in the National Flood Insurance Program, even though their failure makes their citizens ineligible for Individual Assistance, federal home loans, and other services. In effect, the individual citizens are penalized, while the municipality continues to get bailed out.

- Federal financial assistance for flood losses should be based upon the individual's demonstrated willingness to mitigate the risk. The ASFPM believes that flood insurance is the best means of accomplishing this. For example, those living in identified flood hazard areas should not receive disaster assistance if a flood insurance policy was not in place at the time of the flood. Additional mitigation grants should be made available to holders of flood insurance policies on primary residences and commercial structures who take steps to mitigate their flood risk. The premiums on structures with repetitive losses and on those that are not primary residences should reflect the actual risk.

- Similarly, the non-federal share of disaster assistance costs should be reduced in communities where state and local efforts are mitigating the flood hazard. Proposals before Congress have suggested penalizing communities that do not achieve a minimum standard, but an incentive program makes more sense both politically and from a public policy standpoint.

- Federal monetary assistance for individuals should be based upon whether they had a flood insurance policy before the disaster, even if their property lies outside of the 1% chance

floodplain. The total amount of assistance received by an individual should be reduced (or a portion of it converted to loans) to reflect the amount of damage that could have been covered by a flood insurance policy.

- The Community Assistance Program needs to be revisited because, although it has provided products for the Federal Emergency Management Agency, it has tended to replace state capabilities rather than encourage states to develop more of their own capacity.

- Some modifications to the insurance aspects of the National Flood Insurance Program would enable it to better support flood loss reduction. These changes include improving the Increased Cost of Compliance eligibility and funding provisions so that more damaged structures are mitigated with assistance from individual flood insurance policies; finding ways to move toward actuarial rates for policies on repeatedly flooded structures; finding new methods to determine flood risk for insurance purposes so that information useful for community planning and floodplain management can be left on flood maps; and providing an insurance policy benefit for coastal erosion and mudslides only where those hazards are clearly mapped and regulated. The ASFPM believes that this can be done at a net savings to the National Flood Insurance Program

- Programs such as the Federal Emergency Management Agency's Project Impact, which fosters the development of model "disaster-resistant" communities through public-private partnerships, citizen involvement, comprehensive planning, and a multi-hazard and multi-purpose approach to mitigation, should be expanded and encouraged.

Insurance

- Flood insurance purchase requirements should extend beyond the 1% flood hazard area, which could be required when disaster or insurance claims are made.

- The current flood insurance rating for Pre-FIRM structures does not encourage mitigation, since they pay the same rate regardless of depth of flooding.

- Authorization of a provision in the NFIP for mitigation insurance that would include conditions to deal with repetitive loss structures.

- Redefining "substantial improvement" under the National Flood Insurance Program so that improvements to a structure over time are treated cumulatively, rather than each improvement being considered individually. The National Flood Insurance Program should require communities to adopt the cumulative improvement language.

- In cooperation with its partners, the Federal Emergency Management Agency needs to develop a clear position on whether "replacement cost" or "market value" should be used when substantial damage or improvement is evaluated. In general, the ASFPM has found that replacement cost is a better standard in coastal areas, while market value works better in riverine locales.

- Repetitive losses could be financially neutralized by moving to actuarially based premiums and/or deductibles on such structures and adjusting coverage unless mitigation measures

(including dry and wet floodproofing) are undertaken. If cost-effective and feasible mitigation options are refused by a property owner, premiums for that structure should be increased.

- The repetitive loss structures database needs to be cleaned up to include data to show the risk and reason for flooding of each structure and to verify building locations.

- The Increased Cost of Compliance provision could be made more effective by relaxing the eligibility requirements so more damaged structures could receive Increased Cost of Compliance mitigation funds (after over two years, fewer than 150 structures have qualified for this mitigation help); implementing the third provision of the Increased Cost of Compliance law, which allows the Director of the Federal Emergency Management Agency to impose Increased Cost of Compliance when it is "beneficial to the National Flood Insurance Program Fund;" and encouraging property owners to undertake mitigation by increasing the amount of funding available.

- Steps should be taken to bring the estimated 40% of new mortgages that are not federally regulated under the provisions of the mandatory purchase requirement.

- Properties in dam and levee failure zones that are bought with federally backed mortgages should continue to be subject to the mandatory flood insurance purchase requirement, with rates based on the residual risk.

- In Coastal erosion areas, one option the ASFPM favors is an erosion hazard surcharge on National Flood Insurance Program policies if the areas subject to erosion can be accurately identified and mapped.

- Owners of secondary homes should pay flood insurance rates based on the actual risk to that structure, should be responsible for the structure's recovery and repair costs after a flood disaster, and should bear the full cost of mitigation measures for that structure.

- The accuracy and ready availability should be ensured—preferably through a national database—of (1) the information on flood-damaged structures that is already collected by federal agencies, contractors, and others; (2) National Flood Insurance Program claims information, including location of the insured property, amounts of claims payments, and value of the property; and (3) data on repetitive loss structures, including the risk and reason for flooding of each structure. There are several ways to do this. For example, localities could be required to identify the number and risk of structures within their jurisdictions as part of a local mitigation plan done under the Flood Mitigation Assistance Program or the Hazard Mitigation Grant Program.

With regard to the second context described at the beginning of this paper, we urge FEMA to ensure all FEMA programs, not just the NFIP, support wise and sustainable floodplain use. These would include the disaster programs like PA, IFG and all mitigation programs. In addition, FEMA should do everything in its power to convince the Administration, including OMB and CEQ, to establish senior level coordination on flood policy issues, and put them in the "sustainable, multiple objective" context. A policy level coordinating mechanism worked fairly

well after disasters in the mid-90's, but must be an ongoing mechanism. Key items to pursue include:

- A National Floodplain Management Policy should be established. It should include a national riparian zone policy of protecting, maintaining, and restoring riverine areas in order to preserve them as sustainable ecosystems for future generations. Buffer zones along rivers, streams, and smaller waterways need to be encouraged. The Continuous Conservation Reserve Program could be converted to a permanent nationwide easement program for riparian buffers. Emphasis should be placed on maintaining the natural flood storage capacity within all watersheds.

- FEMA's has spent considerable time developing a report on the Natural and Beneficial Functions of Floodplains. It is most important for FEMA to complete and release the report, and to implement the recommendations of the report.

- A coordinated, watershed-based, multi-objective approach for all water resource activities must be adopted. It should include coordination with water quality improvement efforts, the creation and maintenance of upland storage, and coordinated planning among upstream, downstream, rural, and urbanized localities within the same watershed.

- The federal government should set an example by enforcing appropriate restrictions on floodplain lands it leases, and terminating those leases on schedule. In some areas of the nation, buildings exist on floodplain lands leased from the Corps of Engineers. These leases were intended only to "live out" the original landowners and then expire, and they included clauses specifying that neither flood insurance nor flood disaster relief would be available to the owners. A further condition was that the buildings were not to be converted into permanent homes, although most of them have been. However, because of political pressure, hundreds of these properties receive flood insurance claims payments and disaster relief, and leases are being renewed because Congress will not allow the Corps of Engineers to terminate them. In Illinois, these properties make up a significant proportion of the state's repetitive loss properties.

- A new Executive Order should be issued, with an expanded scope and mechanisms for enforcement and accountability. This would reaffirm the federal government's commitment to floodplain management.

There also needs to be a working level coordination mechanism for the many agencies whose activities impact floodplain use and flood damages. That mechanism exists on paper–the Interagency Task Force on Floodplain Management. Its functions were transferred to FEMA years ago, and over the years provided valuable functions to coordinate agency programs impacting and addressing floods. FEMA needs to re-activate that group, which has been dormant the past couple of years.

These ideas are some of the positions of the ASFPM which relate to the issues you have raised in your background paper. We refer you to our *National Flood Programs in Review 2000*, for a

complete report on floodplain management. Please feel free to contact to assist in this effort in anyway. We strongly support this initiative by FEMA.

Doug Plasencia, P.E.
Kimley-Horn & Associates

When asked to prepare a statement on what should be done in floodplain management one could be faced with the task of condensing the writings and works of many authors, some of who are represented at this forum.

However, in order for the forum to be successful, it will not be possible to examine all the issues that need attention. The following are a listing of action items that could be undertaken by FEMA recognizing the constraints of time and budgets.

1. ***Current NFIP Standards***- The NFIP has done an outstanding job of providing guidelines that have become widely accepted as the minimal threshold for construction within floodplains. Unfortunately these standards, while perhaps adequate for managing the risk of an insurance fund, fall short of what is needed for the management of floodplains. In part the problem lies that many local officials, and perhaps some state officials have not fully thought through the ramifications of permitting development that in fact does have adverse impacts on other properties within the floodplain, especially when massive floodplain encroachments are allowed.

   For the long term a thorough review of standards is required. In the near term, FEMA should initiate a program of education that establishes and reminds officials that the NFIP standards are there to manage the fund, and that FEMA would strongly urge state and local governments to adopt policies and standards that would reduce or eliminate flood impacts caused by floodplain development. This message has not been carried forward in a pro-active manner.

   For large development initiatives perhaps this is an analysis that would mitigate for impacts on both increased flood stage and velocities. For small development perhaps this would require obtaining permission for minor impacts from adjacent property owners.

2. ***Master Plans***- While a no-impact floodplain regulation is desirable, it may not be practical, especially in growing urban areas where multiple projects are envisioned. FEMA should be encouraging the development of river master plans that in essence would develop the base line hydraulic models, that would identify mitigation actions, and that would provide for acceptable levels of impact. Modifications to the plan would have to be weighed in terms of overall impacts to the community.

3. ***Residual Risk Flood Insurance***- It has been documented that through the construction of flood control works there has been increased occupancy of floodplain areas. While protected to a degree from flooding, this development is at risk to devastation from large "overtopping" events, or by the failure of the structure. In many cases the damages and impacts will be more severe than if the area had been subjected to a gradual rise in floodwaters. There is a need to expand the flood insurance program to include the concept of residual risk insurance and standards.

Community or Project Flood Insurance- For many communities an effective mitigation tool would be to ensure flood insurance coverage for an entire community, for sections of a community, or perhaps for areas of residual risk. A community placed policy is worth exploring to see if in fact it could be a cost-effective option for communities.

4. ***Coordination***- In the past 7 years there has been many advances by individual federal agencies. However, at the same time, it would appear that mechanisms to ensure ongoing coordination of this policy area have not improved and may have become weaker. I would urge two actions by FEMA.

   The first is for FEMA to reinitiate the Federal Interagency Task Force on Floodplain Management. This group led for many years by FEMA has fallen into disuse. However, the influence this group had by allowing agency staff to share issues and directions was instrumental in laying the groundwork for many of the policy initiatives adopted in the past several years, and into the future.

   The second area would be for the FEMA Director to use his influence at the White House to urge the release of the new floodplain management executive order, and to establish a somewhat more senior level coordinating mechanism for policy development.

5. ***State and Local Capability***- During the 1990's there has been an alarming decrease in the number of full service state level floodplain management programs. In many cases these programs have become simply a clearinghouse for information on the NFIP. On the other hand some local agencies have enjoyed increased funding and expansion of floodplain management authorities, that far exceed the capability of state government. While on one hand this is positive, on the other hand it has created a void in state level policy formation, and the necessary support for small and medium sized communities that lack resources to address floodplain management.

   FEMA policies are not helping this problem and in fact may be making it worse. There is an absolute need to bring back into the process the State Coordinator for the NFIP, and more important develop an approach that would broaden the mitigation focus of these individuals beyond the NFIP. The Flood Insurance fund and FEMA both would benefit by renewed capability at the state level.

The Regional Development Organizations
A Natural Partnership for Sustainability

Ed Copeland
Floodplain Coordinator, Region II Planning and Development Council

Background

The **National Association Of Development Organizations (NADO)** is a leading advocate for a regional approach to community, economic and rural development. Founded in 1967, NADO provides training, information and representation for regional development organizations in America's small metropolitan and rural areas. As a public interest group, NADO is also part of the intergovernmental partnership among federal, state, and local governments.

NADO members, known variously as councils of governments, economic development districts, planning and development districts, and regional councils, provide professional and technical assistance to over 1,800 counties and 15,000 cities and towns.

The majority of NADO members are Participating Communities in the NFIP

In West Virginia, the eleven (11) **Regional Planning and Development Councils** were established in 1972 by the West Virginia State Legislature. They were founded to perform as local, multi-jurisdictional agencies focused specifically on regional planning and economic development.

The Council's mission involves the conversion of community and economic development needs into **proactive** strategies and plans, which then become realistic opportunities, and finally actual projects or programs. The Councils operate as low-key facilitators in a systematic and synergistic process. Their roles range from regional planning for identification and prioritization of local goals and objectives to maneuvering the local, state, and federal bureaucracies to pursue grants or project endorsements.

The Councils are structured as locally oriented, public corporations. They are directed by elected officials from counties and communities within their jurisdictions, as well as non-elected appointees from a cross-section of a region's social and economic institutions. Each Council retains a professional staff adept in public administration, regional/community planning and development.

The councils represent all fifty-five (55) counties and ninety-eight (98) % of the cities in West Virginia.

All fifty-five (55) counties and the majority of cities in West Virginia are Participating Communities in the NFIP

Summary

The National Flood Insurance Program, the Map Modernization Program, and the Flood Insurance Program are all **proactive** initiatives.

What Existing Organization is:

- Proactive
- Has established working relationships, on a daily basis, with the CEO's of NFIP communities throughout the United States
- Is respected as a contributing partner and the go-to organization that will leverage funding resources and provide technical assistance to their members in their efforts to provide community and economic development opportunities
- Understands the importance of building relationships and partnerships with the same key players that the NFIP, Map Modernization, and the Flood Insurance Programs are marketing to
- Is looking for ways to leverage funding and expertise to develop GIS mapping products for their communities.
- Are continually looking for programs that will enhance their ability to make their member communities more disaster resistant
- Empowers the local communities
- Empowers the local citizenry
- Leverages EDA, HUD, ARC, and other federal funding resources with local and private matches

This organization is the Regional Planning and Development Councils (RDO)

French Wetmore
French & Associates, Ltd.

- Like all government programs, the NFIP depends on people. There are three "classes" of people that need attention.

- First is the local official

  A. Key to ensuring that new construction complies with the NFIP regulations
  B. Can encourage better practices, such as avoidance of building in the floodplain
  C. Can overcome many mapping shortcomings
  D. Can promote the purchase of flood insurance and help insurance agents

- Second class of people is the property owner

  A. Final decision maker on how the floodplain is developed
  B. Purchaser of flood insurance policies
  C. Citizens who have an impact on local government

- These two classes of people need training and education from the third class: the professionals who work with the program (us)

  A. We have some training and education tools, such as the home study course, floodplain manager certification and ASFPM's guide for elected officials
  B. But we have neglected the most important tool: Community Assistance Visits
  C. Field staff need support to do the unpleasant things that are sometimes needed
  D. We need the right attitude – field staff should spend less time focusing on some of the minutia of the NFIP regulations and more time reaching more communities to determine whether local officials understand and are enforcing the basics

- The Community Rating System is too often misunderstood and underutilized

  A. Communities use the CRS to organize their programs and to start new ones
  B. There is an underutilized field staff of ISO/CRS Specialists
  C. Local CRS public information programs may be able to help a lot of people

- Do not issue any more map revisions based on fill

- FEMA needs to move away from its one-track mitigation approach of funding acquisition

  A. FEMA cannot afford to buy every building that will be flooded
  B. There are many other things that a community should be doing (especially higher regulatory standards and stormwater management)
  C. FEMA funding should leverage good floodplain management or hazard mitigation plans that identify those other things and get communities to pursue them

Michael J. Moye
President, Bank of America Insurance Services, Inc.

It is a privilege and honor to have been invited to participate in this forum, both as a representative of Bank of America and The National Lenders' Insurance Council. Also, I personally am honored to be here. I have been connected with the National Flood Insurance Program (NFIP) in some way since 1984 when I hired on as an Account Executive at the beginning of the Write Your Own (WYO) Program. In these past sixteen years, I have observed the progress of the program from several vantage points, i.e. government, insurance company, insurance agency, flood zone determination company and lending industry.

As we look to improve the program, we must not lose sight of the great strides that have been made in making certain that this country's citizens are adequately protected from the peril of flood, and that when the floods come, mechanisms are in place to mitigate the disaster and to hasten recovery

Bank of America has a strong interest in the NFIP. The bank serves over 30 million households and 2 million business customers in the District of Columbia and 21 states, from coast to coast. One in every three households in the U.S. has a banking relationship with us.

The National Lenders' Insurance Council (NLIC) formed in 1994 as the "National Lenders' Flood Committee" for the express purpose of providing a "lender's perspective" to the other flood insurance stakeholders. Emboldened by the favorable response to the Committee's work and voice, the group incorporated in 1996 as a not for profit association.

NLIC's published mission is to reduce insurable losses to assets for property owners through government/industry partnerships, education and dialogue. Our vision is for regulators, investors, lenders, servicers, insurers and other responsible industry members to come together to foster an environment in which economic hardship for property owners across the nation can be eliminated. Consequently, this forum complies nicely with the goals and purposes of the Council.

NLIC has given voice to a lender's perspective in a number of ways, such as creating workshops for the National Flood Conference, participating in FIA's Call for Issues, providing a representative to attend meetings held by other stakeholders, and publishing a quarterly newsletter. We have taken those opportunities to express our opinions on many of the questions covered in the background material provided to the attendees at this forum.

In the short time allotted, I tried to obtain a sample reaction of other lenders to the questions posed. Following is a summary of some of the responses, which in no way purport to be complete, compelling or conclusive. Perhaps they may generate thought and conversation or agree with other views presented.

Flood Hazard Identification

- *Should the mapping of floodplains be based on a higher standard, such as the 500-year standard?*

  Yes, there is nothing magic about an A or V zone. More and more flooding occurs beyond these boundaries, bringing into question the validity of the standard set for mandatory purchase.

  Flood Zone boundaries may be more of an art than a science and the 1% standard leads people into a false sense of security.

  NOTE: The nomenclature alone, e.g. 500 year, creates a false notion about the threat of flooding.

- *How can the uncertainty in hydrology be addressed in the flood maps?*

  The uncertainty needs to be recognized and addressed by creating allowances for error in the flood zone calculation. Admit that it's not certain, and factor in a "conservative" measure for the delineation of the zone area and the base flood elevation.

- *Should mapping be based on future conditions, accounting for urbanization and coastal erosion?*

  Absolutely! We are now faced with huge tracts of land being developed and no flood study done because development was not contemplated. By requiring future conditions, a community is compelled to consider the impacts of development. Rates can be adjusted as the future conditions become present conditions.

- *Does the current policy that recognizes levees or removes properties from the floodplain adequately reflect the flood risk?*

  No. An unnamed source says that there are two kinds of levees, those that have been breached or broken, and those that will be breached or broken.

- *Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the hazard identification and mapping?*

  No. These special hazards require special attention and deserve a separate rating structure because of their unique occurrence characteristics.

- *Are current standards for designating floodways appropriate, particularly the allowance of a one-foot increase in flood stage?*

  No, the standards need to recognize and allow for the types of impedance to the flow of water that occur with debris, and to recognize that hydrology calculations are really "best educated

guesses" based on historical data and predictive modeling.

- Are there methods of identifying flood hazards other than the traditional mapping approach?

  Unknown

Floodplain Management

- *Should a higher standard, such as the elevation to the 500-year flood, be implemented?*

  Yes, for similar reasons stated above in Flood Hazard Identification.

- *Should freeboard be required above the base flood?*

  Yes, due to the uncertainty of debris and other impacts on water flow and rise.

- *Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the regulatory requirements?*

  Unknown

- *What strategies can be developed to encourage communities to adopt hazard mitigation plans or comprehensive plans and policies that steer development out of floodplains?*

  Re-assess responsibilities in floodplain management and demand higher accountability of local communities. The community needs to take a hard look at its vulnerability and act accordingly. It is too easy to call for disaster aid from the federal government.

  Project Impact is an important tool in helping communities face the challenge.

- *Are there other things the Program can do to increase levels of protection for flood-prone properties?*

  One suggestion is to require local communities to notify property owners every year of the flood prone status of their property. They are the ones that determine what building or land use will be allowed that could alter the floodways.

  Also, since the flood maps benefit the community, a "hazard mapping fee" could be levied as a real estate property tax surcharge to help fund hazard identification.

- *What strategies and incentives can help encourage states and communities to foster sustainable development and discourage inappropriate floodplain development?*

  Set stringent rules for government assistance following disasters; require greater participation up front in hazard identification, development of mitigation strategies, and creation of response mechanisms. Buy outs following a disaster are costly.

- *What can be done to instill a greater sense of responsibility for states, communities, and citizens for inappropriate floodplain development that puts people and property at risk?*

  Again, put the state, community and citizens on notice that if they fail to manage their risks properly, the federal government will be stingy with disaster relief, then follow through. It's bad "parenting" to do otherwise.

- *What strategies can be developed to address the flood risk to structures constructed prior to the NFIP?*

  Look at possible retro-fit options short of elevation. Re-structure the rating of insurance to take away subsidies (over time). Explore financial incentives to encourage homeowners and communities to take positive steps toward "flood proofing" such structures.

Insurance

- *Should the mandatory flood insurance purchase requirement be extended to apply outside of the 100-year floodplain? Are there other ways to increase coverage in these areas?*

  Most insurance is purchased because of a purchase requirement. Since the extent of flooding has proven to be difficult to predict, extending the mandatory purchase requirement makes some sense. Rate the risk as best as possible. The Preferred Rate is now inadequate because only people who are convinced they will be flooded buy the coverage. The rate may be adequate if everyone in that category were required to purchase.

- *Are there methods to improve implementation of the mandatory purchase requirement by federal agencies and lenders?*

  Since the passage of the 1994 Flood Insurance Reform Act, the criticism that regulated lenders are not compliant loses its punch with every passing month. The policy count increase following the '94 Act is not attributable to the salesmanship of the insurance industry, but to the fact that lenders have implemented or buttressed existing policies, procedures and systems. They not only ensure the purchase of flood insurance at origination when it is required, but also make certain that it is maintained for the term of the loan. Compliance isn't 100%, but the trend is in the right direction.

  Still, a carrot (incentives) along with the stick (threat of penalties) could help speed the process along for those who are slow to recognize the value of compliance. A look at tax incentives or Community Reinvestment credits could be catalysts.

- *Are there ways to ensure that once purchased, flood insurance policies remain in place?*

  Again, lenders and servicers have developed systems to track insurance, or have outsourced tracking to ensure renewal. They do so only for mandatory properties, however. If the mortgagee clause is correct on the policy, it should be renewed or the lender will begin a "lender placed insurance" process to remind the borrower that the policy must be renewed or

the lender will purchase the insurance to protect the loan, and charge the borrower the premium.

- *Are there ways to increase insurance coverage to buildings not subject to the mandatory purchase requirement?*

  The only sure way to make it happen in great numbers is to require it. Again, most people don't buy the coverage unless required, even those at the greatest risk.

- *Should flood insurance be required behind levees?*

  Require the insurance. Rate the risk appropriately.

- *Is the current flood insurance rating model sufficient, or are there other methods to rate the flood risk?*

  This is not a simple question. The question is too broad. Under the current model, adverse selection is a given. If the mandatory purchase requirement is extended, the spread of risk is greater, making it theoretically possible to lower the rate.

Other comments received from lenders, servicers or affiliates:

- "There was a small town in North Carolina, Princeville, that was completely wiped out when the flood waters exceeded their levee. They are rebuilding the levee the way it was before. Perhaps for levees and dams, the requirement should be raised to the 500 year floodplain and periodic inspections done to ensure proper maintenance to the structure if the flood insurance requirement is waived."

- "Another point that maybe should be discussed regarding NFIP is the coverage limits. Many properties along the coast and in special flood hazard areas are high dollar properties and the current coverage limit does not fully protect the property. Although excess flood insurance is available, many homeowners do not purchase it because they are not required and because the current method of processing a claim through an excess flood policy is a deterrent."

- "Also, if FEMA and the NFIP are trying to reduce the flood risk, the current method of removing the flood requirement if the property is even a few inches out of the special flood hazard area seems to defeat the purpose. Maybe a buffer zone of 20 feet could be established around the structure. Also perhaps a buffer of 1 foot in elevation before issuing a LOMA. I have seen cases, especially after Floyd, where the property was but a few inches or feet from the flood hazard so the flood requirement was not in force and a policy was not purchased and the homeowner was without coverage or recourse when Floyd flooded their property."

- "NFIP advertising should show pictures/simulations of anticipated floodways, wave heights, damages, and interviews with victims, etc. Use the "shock value" that live pictures now provide.

- "LOMA's should be issued only when the structure is elevated 10 feet or more above BFE."

- "Change the zone designation nomenclature from 100, 500, etc. to something more understandable by the layperson, e.g. low, medium, high."

- "My feeling about the insurance issue is this. All mortgaged properties should be required to carry flood insurance. Properties outside of SFHA's should be charged the Preferred Program flat rate or some variation of it. If every mortgaged property was insured for flood, ultimately large and innovative property insurers would begin to offer Homeowner and Dwelling Fire policies with flood because they would have a proper spread of risk and could sell the convenience of a single policy. An expansion of the current flood requirement would eliminate most of the insurance problems and issues FEMA has posed. This would also provide an expanded policy base upon which to impose a charge to pay for new flood maps."

Wendy Lathrop
Technical Mapping Advisory Council to FEMA

The Technical Mapping Advisory Council to FEMA was created by the 1994 National Flood Insurance Reform Act (NFIRA) in order to provide technical expertise to FEMA on floodplain mapping issues from the users of flood hazard data. The Council is completing the final of its five years, as established by the NFIRA. Its ten members represent a cross section of users, some of whom are represented individually at this roundtable today, such as USGS, the Association of State Floodplain Managers, Freddie Mac, the National Lenders Insurance Council, and the American Society of Civil Engineers. My position on the Council is as representative of the American Congress on Surveying and Mapping, an organization of four professional societies of surveyors, geodesists, cartographers, and geographic and land information systems specialists. But today I speak on behalf of the Council as a whole.

The Council has prepared an Annual Report to Director Witt at the completion of each of our first four years, containing discussion of issues and new recommendations to be considered in the planning and management of FEMA's flood mapping program. Because those reports are a matter of public record, I will not take this group's time to review past documents.

The Council is pleased and encouraged that many of its concerns have been incorporated into the Map Modernization Plan (MMP). We see this as a step forward both in responsiveness to the public and as a change in management style. However, we do not see the MMP as a final solution to improving the efficiency and enforcement of the National Flood Insurance Program, and view these as constantly evolving processes. I will try to summarize the focus of this year's discussions relating to the preparation of our final Annual Report to Director Witt.

The Council is concerned that flood maps present a current and accurate depiction of flood hazard areas. This includes the following:

- the *location* of identified flood prone areas (addressing base map accuracy),
- the *extent* of flooding (related to hydrologic and hydraulic analyses),
- the true *severity* of flooding (comparing historic flood levels to the calculated levels of flooding, and verifying calculated flood levels after a disaster), and
- the *variability* of flooding (including factors such as dam and levee failures, alluvial fan shifts, areas prone to wildfires that seal the soil from absorbing water, erosion, and tsunamis).

We are concerned that data provided to technical users is a complete and current picture of the flood hazard status of an area. But the maps are used for local approval of construction, local and regional emergency planning for rescue and evacuation, floodplain and stormwater management. Therefore floodplain maps and flood hazard data are of great importance to more than the small technical user population, and data must be complete and current for every individual or agency seeking to protect lives and property. For this reason, we believe that the cost of improving the accuracy and availability of flood hazard data should not fall on the shoulders of the few insurance policy holders within the 1% annual-chance floodplain. The

benefit of good mapping improves the quality of life for the entire community, and therefore of the entire nation. Some of the Technical Mapping Advisory Council's current concerns in creating useful flood risk data (not all data will continue to be traditional paper maps as we move into the digital age) include the following:

- Unnumbered A-zones are approximate delineations of the Special Flood Hazard Area, and are a source of inconsistent interpretation of the extent and location of flood risks. Vague data may be better than no data, but is not the best foundation for decision making in planning and floodplain management.

- There are still unstudied flood-prone areas in our nation, and these must be prioritized and mapped for the protection of the public.

- The cumulative effect of Letters of Map Amendment must be acknowledged. Presently, each LOMA is seen as a stand-alone isolated event, and not related to the ultimate cumulative change in a community's flood hazard status.

- These documents (LOMAs) must also be more easily available and incorporated into the floodplain mapping to ensure a complete and current picture of the flood risks in a community at any given time.

- The cumulative effects of factors such as urbanization, LOMAs, wildfires, and erosion must be acknowledged in watershed-wide floodplain management practice. Watershed-wide planning must extend beyond the invisible and arbitrary boundaries of an individual community's corporate limits. Development within one community can affect the flood risks in another separately mapped community. Regional and watershed-wide planning and floodplain management are the only sound solutions.

- Although crucial, public involvement in floodplain management must go beyond education of public officials and the citizenry. It must also include meaningful public involvement during the decision making process so that there is local buy-in for the adopted practices

- Ongoing input to FEMA from groups such as the Council or today's Forum must be ongoing to provide feedback, air new concerns of constituents, and serve as a testing ground for FEMA's new products or policies. The process provides expertise and guidance to FEMA and earns the support of those whose concerns are heard and incorporated into FEMA planning and programming.

Thank you for your time, and I look forward to a valuable exchange today.

Albert LeQuang
Manager, Insurance Standards and Disaster Mitigation
Freddie Mac

My name is Al LeQuang. I'm responsible for insurance standards and disaster mitigation in the Mortgage Credit Policy Department of Freddie Mac.

I regret that I was unable to provide you with advance copies of my remarks. I did not receive this invitation until late last week. I will be more than happy to send a copy to FEMA for further distribution to interested parties, or you can give me a business card and I'll send it directly to you.

As you may know, Freddie Mac is a stockholder-owned corporation chartered by Congress in 1970 to create a continuous flow of funds to mortgage lenders in support of homeownership and rental housing. We fulfill this mandate primarily by purchasing mortgages from primary lenders and packaging them into mortgage-backed securities which we sell to investors here and abroad. By doing so, we sustain a stable mortgage credit system and ultimately lower housing costs for homeowners and renters.

Over the years, we have helped open doors for one in six homebuyers and some 2 million renters.

We help Americans get into homes they can afford, but we also want to get them into homes they can and will keep.

Further, as a major purchaser of mortgage loans and guarantor of mortgage-backed securities, we deem it critical to the fulfillment of our fiduciary responsibilities that our collateral remain unimpaired.

To those ends, we have established a standard requirement that all properties securing mortgages sold to us or serviced for us be adequately insured against losses from natural or man-made perils. This includes such perils as fire, windstorm, earthquakes, sinkholes, mine subsidence, flooding, etc. Even if there had been no laws governing flood insurance, prudent risk management would have compelled us to impose a requirement for such coverage.

This is where government intervention muddies up the water, if you will. While we're grateful the federal government stepped in when it did in 1968 to establish the National Flood Insurance Program (NFIP) and fill a void in flood insurance coverage, we must deplore what we perceive as the NFIP still operating, in some respects, by 1968 standards. Over the years, we have implored the Federal Insurance Administration (FIA) to amend certain aspects of the insurance coverage, but our effort has been of little avail. In the private sector, if you do not advance with the market, competition will kill you. The NFIP, on the other hand, has little incentive to change. We have had many National Flood Conferences, even a Grand Forks flood insurance "summit," but very little has changed. In some respects, this can be attributed to statutory constraints. In other respects, program designs are at fault.

We thus applaud Director Witt for his leadership in convening this Forum which, in his own words and among other goals, will "identify aspects of the NFIP that are ripe for change" and "help the Federal Emergency Management Agency (FEMA) evaluate the NFIP in order to improve programs and policies."

Freddie Mac has a long history of cooperation with and support of the NFIP. That is why we enthusiastically responded to Director Witt's appeal. We take this opportunity to bring to Director Witt and the distinguished Forum participants this core recommendation for change to the NFIP: for the sake of the insured homeowner, the mortgagee, the mortgage investor and the taxpayer at large, flood insurance coverage must be made to perform like homeowners coverage.

While the insurance industry has eliminated coinsurance penalties by insuring only to value (i.e., for 100 percent of replacement cost), the NFIP's insurance contract still contains a penalty for insuring for less than 80 percent of replacement cost. We thus have a situation where, on one hand, the law essentially tells homeowners (but, mind you, only homeowners who have a mortgage with a federally-regulated lender or a mortgage that will be sold to Freddie Mac or Fannie Mae): "*we only need you to insure for the loan amount*," but, on the other hand, the NFIP's insurance contract essentially says, "*if you do that, I'm not going to make you whole when you file a claim*."

If you have a property with a replacement cost value of $100,000 on which there is a $50,000 mortgage and you buy only the minimum required by law, your claim for loss is not paid in full, as explained above. Where do you go, then? Federal disaster assistance. This does not reconcile with Director Witt's philosophy that flood insurance is "*an essential mechanism of transferring the costs of flood losses from the taxpayers to property owners*" and "*helps cultivate individual responsibility.*" Neither the flood insurance statutes nor the implementing regulations of FEMA and the banking regulatory agencies promote this individual responsibility.

Freddie Mac, for its own protection and for the sake of its borrowers, require the latter to insure for the greater of the loan amount or the NFIP insurance contract's minimum of 80 percent of replacement cost. However, it has been an uphill battle for us to convince both our borrowers and our lenders that the borrowers need to insure for more than the **minimum** required by federal statutes. There's even been at least one court decision that the coverage required by federal statutes is the **maximum** that may be required of a borrower. Again, in the private sector, customer satisfaction drives our operations. It may ultimately cause us to ease up on our flood insurance requirements but we certainly would not be the only loser. If the NFIP does not change and we do, you can expect to see less premium dollars flowing into the Insurance Fund and more taxpayers' dollars flowing out of federal disaster assistance. Not to mention a rise in the incidence of mortgage default resulting from uncompensated flood losses.

Additional Living Expenses (ALE) is another coverage that the NFIP should assume, just as the standard homeowners insurance policy does. We cannot see why insured flood victims should continue to look to federal disaster assistance for their temporary housing needs.

There are many other aspects of the flood insurance coverage that, in our opinion, need to be brought to current industry standards. For example: coverage for co-operative buildings; coverage limits for multifamily rental buildings; inflation guard; condominiums; zone ratings, etc. Because of time constraints, I will not expand upon them at this time. I would be more than happy to discuss those issues in the course of the Forum, or later on with interested FEMA/FIA officials.

Thanks again for giving Freddie Mac this opportunity.

Permitting Disaster in America

Brett Hulsey
Director, Protect Our Families From Floods Project
Sierra Club Midwest Office

My Background

- Sierra Club Senior Midwest Representative
- Directs Protect Our Families from Floods Project
- Masters in Natural Science and Geography, O.U., B.A. in Political Economy from Middlebury College
- Dane County Board Supervisor, member Lakes and Watersheds Commission, Transportation and Land Conservation Committees
- Winner, FEMA Distinguished Public Service Award
- Former teacher and VISTA Volunteer

Overview

- Thanks for your leadership on Nationwide Permits and Project Impact.
- A positive vision and values.
- Army Corps reforms in the right direction.
- Flood deaths and damage increasing.
- Smart growth = reduced floodplains sprawl and "rubber stamp" wetland destruction.
- Need more help stopping bad projects and protecting open space.

Sierra Club Principles of Flood Protection

- Help those flooded recover and move out of harms' way.
- Protect wetlands, floodplains, and other critical habitat upstream to store water and reduce future flood risks.
- Strengthen floodplain protections to keep others from moving into harms' way.
- Top priority of the national sprawl campaign

Key Values that Relate to Wetland Destruction and Floodplain Sprawl

- *Responsibility* to protect ourselves and families from floods
- *Responsibility to protect* our environment, land and water
- *Responsibility to plan and spend tax money* wisely

The Message—Don't Permit Disaster in Floodplains, Wetlands

- Floodplains sprawl hurts us all with more flood deaths and risks.
- Out-of-control, irresponsible building threatens our quality of life and our environment.
- Don't build in wetlands and floodplains.
- Need Feds to do their part to slow floodplain sprawl.
- State and local leaders need to slow floodplain permitting.

Thanks for the Help on "Rubber Stamp" Destruction

- Nationwide Permits (NWPs), the easy wetland destruction permit, allows developers to destroy small wetlands with:
  –No warning neighbors of future flood risks.
  –No mitigating wetlands elsewhere.
  –Little oversight.
- 99% permits granted in 16 days.
- Resulting in the drainage and destruction of *78,065* acres between 1988-96. *Like blowing up 24,000 small flood control dams.*

Flooding Facts and Concerns

> ***Floods have caused greater loss of life and property, and disrupted more families than all other natural hazards combined."***
> -FEMA Director James Lee Witt

- Deaths and Damages
- Wetland Benefits
- Destruction Rates Increasing Likelihood of Flooding

Top Ten Flood States

1.	Texas	145
2.	Missouri	64
3.	Ohio	60
4.	California	69
5.	Georgia	49
6.	Kentucky	38
7.	Tennessee	37
8.	Alabama/Penn.	32

Source: US Army Corps of Engineers

Top Flood Damage States=High Wetland Destruction States

1. Iowa	$6.7 billion	89% lost
2. California	$4.5	92%
3. North Dakota	$3.9	49(75)%
4. Louisiana	$3.8	46%
5. Missouri	$3.5	87%
6. Oregon	$3.4	38%
7. Illinois	$2.9	85%
8. Texas	$2.0	52%
Average	**$3.8**	**67%**
National Average	**$0.9**	**53%**

Need to Focus Efforts on Top Flood Disaster Counties

- 7 declarations--King County WA, Jefferson County IN
- 6 declarations--Grays Harbor, Lewis, Pierce, Snohomish, Thurston County WA, Dearborn and Switzerland County IN, Marshall County AL, Oxford County ME.
- 5 declarations--WA, IN, AL, ME, ND, CA, SD, IL, VT, MO.

How Does Floodplain Sprawl Hurt Us More Than Flood Deaths and Damage?

- Flooding killed more than 957 people from '89-98, according to USACE.
- Flooding has caused millions of people to become homeless.
- Flooding cost $4.5-8 billion each year since 1988, USACE/NOAA.

Wetlands Can Reduce Floods

> *"Where significant wetlands exist, they can have a noticeable effect on (flood) discharge peaks from the (Mississippi River) basin."*
>
> *"The Galloway Report," A Blueprint for Change, Part V, Science of Floodplain Management into the 21st Century*

Wetlands Could Soak up '93 Flood

> "The 1993 flood verifies the need for additional wetland the amount of excess water that passed St. Louis during the 1993 flood would have covered a little more than 13 million acres -- half of the wetland acreage drained since 1780 in the upper Mississippi Basin. **By strategically placing 13 million acres of wetlands on hydric soils in the Basin, we can solve the Basin's flooding problem in an ecologically sound manner."**
>
> --Hey, Don, "Commentary: Flood Reduction through Wetland Restoration," *Restoration Ecology*, Volume 3, No. 1, page 4.

Stopping Floodplain Sprawl Cheaper Than Buyouts

- FEMA, state emergency management agencies and local governments have moved more than 17,000 homes and businesses out of floodplains from 1988-98.
- These bailouts cost federal taxpayers more than $700 million since1988.
- That money would have bought easements on 700,000 acres of wetlands = 2.1 million acre-feet storage.
- Flood insurance running $300+ million deficit each year.

Flood Hazard Identification

- Should the mapping of floodplains based on a higher standard, such as the 500-year standard? YES, BUT START WITH 100 YR IN HIGH FLOOD COUNTIES, MAKE PART OF FLOOD PACKAGE
- How can the uncertainty in hydrology be addressed in the flood maps? MAP NOW, TALK LATER.
- Should mapping be based on future conditions, accounting for urbanization and coastal erosion? YES
- Does the current policy that recognizes levees or removes properties from the floodplain adequately reflect the flood risk? NO, I.E. MISS RIVER, DxD report.
- Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the hazard identification and mapping? NO
- Are current standards for designating floodways appropriate, particularly the allowance of a one-foot increase in flood stage? NO 1' RISE SHOULD BE ALLOWED, LOOK AT THE PHILLY SITUATION.
- Are there methods of identifying flood hazards other than the traditional mapping approach? HIGH, MED, LOW HAZARD ZONES WOULD BE HELPFUL.
- Should a higher standard, such as the elevation to the 500-year flood, be implemented? YES.
- Should freeboard be required above the base flood? YES, AT LEASE THREE FEET.
- Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the regulatory requirements? NO.
- What strategies can be developed to encourage communities to adopt hazard mitigation plans or comprehensive plans and policies that steer development out of floodplains? MAKE

THEM RESPONSIBLE FOR DEV. IN THOSE AREAS, REQUIRE PAYBACK IF AREAS NOT PROTECTED.

- What strategies and incentives can help encourage states and communities to foster sustainable development and discourage inappropriate floodplain development? MAKE THEM CONDITIONS OF ASSISTANCE.

- Are there other things the Program can do to increase levels of protection for flood-prone properties? REQUIRE POSTING ON REAL ESTATE SIGN IN HIGH HAZARD AREAS.

- What can be done to instill a greater sense of responsibility for states, communities, and citizens for inappropriate floodplain development that puts people and property at risk? REDUCE THE SUBSIDIES.

- What strategies can be developed to address the flood risk to structures constructed prior to the NFIP? BUY THEM OUT.

Insurance

- Should the mandatory flood insurance purchase requirement be extended to apply outside of the 100-year floodplain? Are there other ways to increase coverage in these areas? YES

- Are there methods to improve implementation of the mandatory purchase requirement by federal agencies and lenders? SPOT AUDITS IN HIGH FLOOD AREAS.

- Are there ways to ensure that once purchased, flood insurance policies remain in place? SPOT CHECKS.

- Are there ways to increase insurance coverage to buildings not subject to the mandatory purchase requirement? ADS DON'T SEEM TO WORK.

- Should flood insurance be required behind levees? YES.

- Is the current flood insurance rating model sufficient, or are there other methods to rate the flood risk? SHOULD BE ACTUARIALLY SOUND. Reduce flood damages and death by:

  A. Protecting floodplains, wetlands, and coastal areas from sprawl development through protection, regulation, and purchase.

  B. FEMA and state floodplain office should review all wetland destruction permits in high flood counties.

  C. Updating all 100 year flood maps at time of disaster.

  D. Support Wetlands Reserve Program, wildlife refuge expansion, and other habitat programs more vigorously.

Dr. Gilbert F. White
Institute of Behavioral Science
University of Colorado

The aim of FEMA to focus on large issues facing the NFIP and floodplain management is commendable and belatedly timely. The major intent "to explain methods to increase the level of protection against flood risks" is of doubtful suitability unless based upon a careful appraisal of national experience in floodplain management and unless linked with an effort to involve all interested responsible government and community organizations in cooperative actions to promote wise public and private use of hazardous areas.

The Federal interagency task force that was one of the two groups recommending establishment of a national flood insurance program in 1966 proposed that such a venture be experimental and subject to critical appraisal as a means of avoiding its becoming counter-productive (89th Congress, 2d session, House Document No. 465, 1966, A United National Program for Managing Flood Losses, 16-18, 38-39). There has not yet been a thorough evaluation of the effects of the national flood insurance program, although a review of all the available scattered research finding was initiated by the FIA Administrator in 1998, and there have been recent studies of selected coastal counties by the Heinz Center, and of Tampa and Syracuse floodplains by Tobin and Montz (in press) supported by the Compton Foundation. Thus, there is not yet a solid base for sweeping generalizations about how and why the NFIP affects national efficiency and vulnerability.

The focus on "increasing the level of protection against flood risks" tends to ignore the more fundamental aim of promoting the development of genuinely sustainable communities (Mileti, *Disaster by Design, 1999*). To address that goal would, as a minimum, require explicit attention to natural and productive uses of floodplains. It also would require attention to other natural hazard and disaster relief policies in similar areas as begun in the Project Impact studies. Both of these requirements would involve careful analysis of: the influence on land use and hazard vulnerability; of the policies and practices of a wide range of government agencies, such as, Federal public roads and open space agencies (e.g. OMB, *Federal Programs Offering Non-Structural Flood Recovery and Floodplain Management Alternative,* 1998); and local planning agencies.

Sue Cameron
Tillamook County Commissioner
Tillamook County, OR

Tillamook County, Oregon is rural County located on the northwest coast of Oregon. Rivers running out of the Coast Range of mountains cross a narrow coastal plain before entering the Pacific Ocean via one of five estuaries. Heavy winter rains characterize Tillamook's climate, with over 100 inches annually falling in the Coast Range. Tillamook also has 55 miles of ocean shoreline subject to heavy surf during the winter months, resulting in periodic bouts of flooding and erosion. One may easily understand, given our location and climate, that we have an active interest in sustainable floodplain management.

We are encouraged that the National Flood Insurance Program (NFEP) is taking steps toward a more holistic approach to floodplain management. We feel that it is necessary to take steps beyond regulation of structures in order to reduce the risk of damage due to floods and other natural hazards. For example we are working with the Army Corps of Engineers on a feasibility study for the Tillamook Bay watershed to identify opportunities to restore wetlands and tidal sloughs. Such actions will improve floodplain capacity and connectivity and also improve habitat for fish and wildlife, including threatened and endangered salmonid species. We have also had great success elevating high-risk structures onto new foundations using funds from the Hazard Mitigation Grant Program through Oregon Emergency Management and FEMA. We feel it is very important to link floodplain management to floodplain health.

Nonetheless, we have gone beyond the NFIP standards for our floodplain management ordinance. Our recent flooding experience has led us to question the reliability of the Flood Insurance Rate Maps (FIRM's) for predicting actual floodwater depths. We now require new construction to be elevated three feet above the base flood elevation listed on the FIRMS. We have also adopted a repetitive loss provision to break the cycle of loss/insurance payout/loss/insurance payout due to repeated flood events. We are also working on our application for entry into the Community Rating System and we are a Project Impact community.

Specific to the issues of flood hazard identification, floodplain management, and insurance, we have the following comments.

Flood Hazard Identification

- We support the current standard of 1% (i.e. 100-year event) for flood risk mapping and regulation. We feel it is helpful to have the lower risk "500-year" floodplain mapped, since this delineation provides additional information for property owners to use when assessing property values and as an area where it may be recommended but not required to use construction techniques which reduce flood risk.

- We feel that mapping should be based on the best available information to create accurate representations of the floodplain and water depths as they currently exist. The added uncertainty introduced by mapping future conditions seems unwarranted and unsupportable

by current mapping methods. The use of more robust hydrodynamic models and alternative data sources, such as soil types, should be explored.

- The mapping of coastal hazards is incomplete on the Tillamook County shoreline and we would like to see that completed. The methods used to generate the existing maps is not based on the conditions encountered on the Pacific NW coastline, particularly regarding the wave record used, the degree of flood protection afforded by foredunes for interior areas, and the risk of landslides caused by erosion of ocean bluffs during large storm events.

- The designation of floodways is error prone and incomplete on the tidally influenced, multi-channel, drowned river mouths commonly found in coastal Oregon. Floodways in general appear to be artificial, model-driven, engineering solutions rather than an accurate representation of where development should be restricted in order to prevent obstruction of floodwater discharge.

Floodplain Management

- As stated above, we feel the current standard is appropriate for floodplain regulations. We do require a 3-foot freeboard above the base flood elevation in order to deal with mapping error and possibly increased risk of flooding due to physical changes in our watersheds and floodplains.

- We feel that there should be a renewed interest in identifying coastal hazard areas, including areas subject to velocity flooding and coastal erosion. However,
regulations in these areas should be designed to eliminate subsidies for development in high risk areas rather than protection from the consequences of risky siting decisions. We feel that increased funding for risk-reducing floodplain activities should be made available. For example, funds for elevating structures and acquiring properties in high risk areas is very effective at reducing overall floodplain risk.

Insurance

- As a floodplain community, we are not directly involved in insurance program. However, we do not support extending mandatory purchase of insurance to areas outside of the 100-year floodplain.

Mike Ellegood
Chief Engineer and General Manager of the Flood Control District
Maricopa County, AZ

Hello. I'm Mike Ellegood, Chief Engineer and General Manager of the Flood Control District of Maricopa County, which is located in the Phoenix metropolitan area. The County takes in more than 9,600 square miles and vies with Clark County, Nev. as the fastest growing county in the nation. A special challenge for our District is educating our public of the need for flood control when we live in a desert and only get about eight inches of rain annually. This is a continuing effort since most of our new residents are arriving from outside the desert southwest.

For the last three years, the Flood Control District of Maricopa County has adopted what we call the "kinder, gentler" approach to flood control. Whenever possible we use non-structural means to mitigate the flood hazard. We work to protect the environment and improve the quality of life of area residents, by retaining our watercourses in as natural a condition as we can and by using natures facilities as parks and open space. Where a structural alternative is required, we typically soften its impact by making the facility dual use and including a recreational component into the design.

This approach makes it much easier for us to convince the public and our municipal partners of the need and value of flood control facilities. By avoiding concrete, we can partner with the cities to plan parks, golf courses and trails alongside our floodways and washes. The cities find they can get two uses for a channel or basin rather than one - they can keep their residents safe while at the same time providing recreational amenities and open space.

While our first instinct is to choose non-structural alternatives as a preferred method of mitigation, this is not always possible. Broad areas of sheet flow, existing development and sometimes because development is occurring in such a widespread and rapid fashion, we cannot always keep our planning ahead of development, structural alternatives are necessary. It is important to realize that a non-structural approach cannot be used as the only acceptable method of flood mitigation. We must retain both structural and non-structural methods as tools in our box. We must be able to choose the alternative that best mitigates whatever flooding issue we are facing.

The question has been asked, "should design flood be increased from 100 to 500 years?" The Flood Control District of Maricopa County recommends that each watershed and each water course be studied to evaluate the degree of hazard and that an appropriate level of protection be adopted for each. While 500-year protection seems reasonable for our major dams and for watercourses such as the Mississippi and Colorado, such a return frequency would not be practical in Maricopa County, indeed most of Phoenix would have to be abandoned! In many cases, we have found that a 10-year system may be the best, most cost-effective method to convey water from some neighborhoods, especially those older locations where we must retrofit channels. Hydrologists could perform uncertainty analysis to assign the probability of danger for these areas and tailor our solutions accordingly. I think it is important that we design guidelines for this..

An important flood hazard that return frequencies do not address is erosion. In some of our watercourses in the desert southwest, the erosion hazard is every bit as dangerous as flooding. Erosion setbacks are necessary to provide adequate protection to the homeowner. While it can be properly argued that local knowledge should result in local regulations, property rights advocates will often successfully argue that simply elevating and staying out of the floodway will meet FEMA regulations and therefore should be allowed.

Solid planning is crucial to what we do. The hazards due to flooding and erosion must be evaluated by watershed and watercourse and a plan developed and adopted that reflects the degree of hazard present. FEMA can help with this by reviewing our Area Drainage Master Plans and our Watercourse Master Plans and by providing a federal imprimatur to the completed planning effort. In Maricopa County, we are developing Watercourse and Area Drainage Master Plans which not only tell us the hydrology and geomorphology of the County, they also provide us with information regarding multi-use opportunities and potential land uses. Through these studies, we can determine hazardous areas, places where 10-year facilities are appropriate and locations where a 100-year minimum structure are mandatory. We can determine where we should purchase land, and where we should ask cities to curb development. These studies will literally map the future of our county.

Much of the country needs updated floodplain maps. It should remain a top priority for FEMA to fund the map modernization program, to include the use of general funds if necessary. These maps should be prepared in electronic format and should be disseminated widely through the internet.

We suggest that one way to fund these projects may be to mandate low-cost flood insurance for all homes with mortgages. As we understand that approximately 35 percent of homes damaged in floods are not in traditional floodplains, this could be a service to homeowners. At the same time, it would increase the amount of cash available to FEMA.

But perhaps the best flood control we can practice, is simply educating the public. People need to understand that floods are the most likely hazard they will face in their lifetimes. They need to understand the importance of knowing whether they live in a floodplain and what is required if they do. They should understand the hydrology of the land they live on, just as they should know its history. As floodplain managers, we need to set aside time and money to teach the residents of our communities to stay out of washes during rainy seasons.

We must never forget that our primary mission is to keep Americans safe from the dangers of floods. We must educate our elected officials that floods are a real hazard, and that paying for protective facilities is as important to safety as building jails. We can only do this through diligent communication with all elements of our community. I thank you for your time.

John R. Sheaffer, Ph.D
Sheaffer International

'I'he National Flood Insurance: Program (NFIP) addresses a very limited part of a watershed or drainage basin, the 100-ycar floodplain. 'I'here have been several studies that have speculated that ten percent of a watershed is subject to inundation. In addition, the focus of the NFIP is further limited to developed areas. The agricultural uses of the floodplain generally are not addressed by NFIP. Consequently, NFIP is to foster sound floodplain management and sustainable development while working with a relatively small portion of the watershed area; the, area subject to inundation from the 100-year flood,

Rainfall occurs over all the land area of a watershed. The amount of rainfall is relatively uniform. The runoff from the high land, the dominant land, flows onto the low land, the servient land (floodplains). Because the high lands discharge onto the low lands, it is generally assumed that the urbanization of a watershed will increase the elevations of the 100-year flood. However, there is some evidence that runoff from the dominant land cannot be discharged onto the lower land at a rate greater than the historic flood and the point of discharge cannot be changed.

If the dominant lands would detain or retain the rainfall that falls on them, the floodplain lands would not be subject to higher floods. If dominant landowners simply discharge all their runoff onto the servient land (floodplain), they should to be assessed for the cost of storage provided on the floodplains.

In 1998, there were 68 million single-family houses in the United States. If each one of these houses paid a flat sum for the management of runoff, for example, $50.00 per year, $3.4 billion would be collected (68,000,000 x $50). This sum would be adequate to not only cover the cost of flood disasters, but also establish a sum of' money needed to correct past land use mistakes. Repetitive loss structures could be removed and sufficient funds would be available to assure that the occupance of floodplains would be limited to “wise uses”.

Sewage treatment facilities are generally located on floodplains. Currently an effort is made to protect the treatment facilities against the 100-year flood. Success with this effort has been mixed. The greater floods affect adversely the “protected facilities.” Sewage treatment plants do not have to be located on the floodplains. In the North Fork of the Shenandoah River Basin, a new Modular Reclamation and Reuse System will replace four (4) sewage treatment plants that are located on the floodplain, eliminate the direct discharge of pollutants into the river, and provide the basis for a riverine greenway. The system also will remove 321,000 pounds of Nitrogen and Phosphorus from the Chesapeake Bay each year.

An appraisal of the, current National Flood Insurance Program is summarized in Table 1. A multi-purpose approach is juxtaposed to the current effort to show the potential for expanding the benefits that would accrue from a broader program.

Table 1: Appraisal of the Current Program

Regulatory Approach	Multi-Purpose Approach
1. Minimize flood losses (loss reduction)	1. Optimize net social benefits from floodplain resources (wise use of resources)
2. Expand flood delineation mapping efforts (update the maps)	2. Incorporate other agency efforts to achieve natural and beneficial uses of floodplains (impact the hydrology)
3. Expand participation in the flood insurance program (adverse selection which results in repetitive flood losses)	3. Foster sustainability, while reducing flood vulnerability

Phil Oshida
Deputy Director
Wetlands Division
U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency is dedicated to protecting human health and safeguarding the natural environment - air, water and land - upon which life depends. EPA ensures that: all Americans are protected from significant risks to human health and to the environment where they live, learn and play; national efforts to reduce environmental risks are based on accurate information and the best scientific data; and Federal laws protecting human health and the environment are enforced fairly and effectively.

EPA's water programs protect the public health of all Americans by ensuring safe drinking water and protecting the biological, physical, and chemical integrity of our nation's waters. The water programs protect public health and restore our nation's waters by: implementing environmental laws; setting strong goals; furnishing training, guidance and technical tools; and providing states, tribes, communities and landowners with effective environmental information and resources.

The Environmental Protection Agency and the Federal Emergency Management Agency have been active partners in several activities and programs. EPA assists in the federal response to disasters that affect environmental infrastructure, including water supply and wastewater facilities. FEMA, EPA and other agencies often work together to improve floodplain management programs and decision making. In recent revisions to the Clean Water Act section 404 Nationwide Permit program, FEMA and EPA worked with the Corps to develop more environmentally appropriate permitting requirements in floodplains and floodways.

There are many opportunities where increased interagency collaboration would better protect and improve our nation's waters and floodplains, and concurrently reduce risks from flooding. FEMA and EPA's water programs are actively promoting interagency coordination in Headquarters and our Regions to enhance the environmental health of watersheds and reduce risks from flooding. Interagency coordination and cooperation in all areas affecting disaster risk reduction and environmental improvements are being encouraged. For example, EPA staff has recently participated in FEMA's national and regional Project Impact coordinators meetings, and FEMA leaders are faculty for EPA/OPM's Watershed Partnership Seminars.

It is difficult to separate National Flood Insurance Program policies and practices from FEMA's larger role of reducing loss of life and property and protecting the nation's critical infrastructure from all types of hazards. Thus, the following recommendations may reach beyond the scope of the NFIP and address broader FEMA or other federal flood protection policies:

Incentives and Disincentives

- The federal agencies should provide increased funding and technical assistance (e.g., Project Impact) to states, tribes and communities that are interested in creating multilevel, community-based partnerships to develop comprehensive watershed

solutions for reducing flood damage and protecting and restoring the natural and beneficial functions of floodplains.

- Concurrently, the federal government should begin to limit sources for compensation and after-the fact solutions to flooding problems. Larger shares of flood disaster relief should only be available to states, tribes and local governments that have comprehensive plans for, and have made significant progress in implementing strong flood risk reduction and environmentally sound floodplain management programs before flood disasters.

- FEMA should revise flood insurance rate schedules and community participation standards for the National Flood Insurance Program to provide increased incentives to reduce flood risks. FEMA's flood insurance underwriting should be modified to more closely resemble the standards of the private insurance industry. When structures have been repetitively damaged by floods, flood insurance premium rates should be increased to reflect the higher flood frequency and cumulative cost of flood losses associated with that property.

Education and Outreach

- Education and outreach should be improved to provide communities better information on current and future flood risks, and the nonstructural alternatives for reducing risks.

- The public needs to be able to easily determine whether their homes and jobs are in the floodplain or floodway (e.g., using Internet sites or real estate transactions/records).

- Communities need to understand how future buildout plans for areas upstream, in the floodplain and/or in the watershed may increase their risks. As an example, EPA and FEMA can work with state and local community representatives to determine the effects reduced permeability (increasing buildout) in the watershed will cause in terms of stream health and integrity, and increased risks from flooding.

- The public should be aware of the full costs of floods (including considerations of property damage, human health and safety, loss of business and economic recovery, and economic competitiveness), and the economic and intrinsic values of open space (fish and wildlife habitat, improved water quality, recreation, agriculture, aesthetics and flood management).

Restoring Floodplain

- Federal, state, tribal and local funding for programs that increase flood storage in environmentally appropriate ways should be increased. Efforts such as the Wetlands Reserve, Emergency Wetlands Reserve, and Conservation Reserve Programs restore wetlands and other natural systems, and in so doing, often increase the flood -capacity of the watersheds, decrease the risks from flooding, and reduce the peak flows and increase the base flows of the streams.

Promoting Non-Structural Alternatives

- The federal government should provide a clear national policy and set appropriate goals for floodplain management that supports and catalyzes programs that reduce risks from flooding through the use of nonstructural flood control alternatives.

- Future federal expenditures and financial assistance in undeveloped floodplains that encourage structures in floodplains should be limited.

- FEMA should develop, and has in place prior to a presidentially declared disaster, a national policy that would ensure that there is appropriate environmental review in a post flood disaster "emergency" situation for any proposed structural solutions to “control" future flooding problems. The ecological integrity of streams and other waterways should not be compromised in the name of "disaster relief."

- The federal government should establish a clear preference for the nonstructural alternatives for flood reduction in the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*.

- The Administration should finalize and implement the Executive Order #11988 on Floodplain Management.

Coordination on CWA Section 404 permits

- FEMA should provide comments on Section 404 permit applications that affect floodplain and/or floodway hydrology (e.g., projects not meeting an appropriate "rise" standard for floodway fill and construction). The construction of such projects may significantly impact flood flows, increase flood risks and/or aquatic resources. FEMA experts could address case-by-case and cumulative flood flow and risk issues.

- FEMA should work with the Corps and EPA to help develop case-by-case mitigation conditions that fully offset lost conveyance and retention function of the floodplain.

- FEMA should work with the Corps and EPA to help develop program guidance that emphasizes the need to avoid and minimize impacts that significantly affect flood risks and/or floodplain hydrology (e.g., projects not meeting an appropriate “rise" standard for floodway fill and construction).

Dr. James Berry
Department of Biology
Elmhurst College

Development in mapped floodplains to a very large extent entails a known risk. In most enterprises in life, people who undertake known risks, such as investing in the stock market, live with those consequences and do not expect the public to compensate their losses. Throughout most of U.S. history, property owners who suffered losses from natural disasters did not expect the federal government to bail them; no formal system of federal disaster relief was even enacted until 1950. Nonetheless, disaster assistance has come to be an expectation disconnected from either landowners' responsibility to avoid undue risks or governmental authority to use land-use regulations to prevent harm to the environment or the community. We cannot afford to encourage the idea that there is a free lunch with regard to developing in the path if natural hazards.

Today, however, court cases and a political movement seeking new takings legislation to force government to compensate for what property rights advocates consider excessive government regulation have given some local government officials pause in considering new or expanded programs to reduce risks from natural hazards.

In the case of the National Flood Insurance Program, however, there simply is no constitutionally proscribed taking involved. The buyout program is purely voluntary, involving only willing sellers and willing buyers-usually local or state government. While the insurance program entails some regulations, these are in effect no different from the conditions and incentives built into private insurance, where one purchases guarantees of coverage with certain conditions imposed by the insurer to contain the degree of risk within reasonable bounds. If anything, the NFIP has at times been criticized for not being strict enough in protecting the federal government's interests in reducing losses.

Local governments implement the floodplain management requirements of the NFIP as a condition of participation for the benefit of their own residents and property owners. This is a perfectly reasonable exchange. In doing so, these local governments are performing the important function of protecting public safety. In an effort to minimize risk for their residents, many communities enact stricter controls over floodplain land uses than the NFIP requires, often doing so as a result of incentives in the Community Rating System. They must, of course, follow widely recommended standards for substantive and procedural due process in order to avoid potential takings claims while enacting and enforcing land-use controls. There must be a sound factual basis for regulations as well as a means of appeal for property owners who feel they can establish undue economic hardship because of the regulations.

But in the case of flood loss reduction, one development may impact the security of other property owners within the watershed. Examples abound. One person's unrestricted right to develop in a coastal zone or riverine floodplain, given the speed of hurricane winds or flash flood waters, can become his neighbor's flying or floating projectile. At the very least, by creating new impervious surface or new impediments to the flow of flood waters, new development often

raises the previously established topographic level of the 100-year floodplain downstream. In addition, the hundreds of thousands of bloated animal carcasses floating in floodwaters in North Carolina following Hurricane Floyd are hardly the only example of potentially serious public health consequences arising from questionable land-use practices. In all these cases, there is little question concerning the validity of the underlying public purpose of better floodplain land-use regulations and little basis in sound public policy for allowing or encouraging unwise floodplain development. Planning can be used to help communities sort out their priorities for achieving environmental protection, reduction in lose lives and property damage from natural disasters, the preservation of publicly accessible waterfront recreational opportunities, and a higher quality of life for the community in general. The very idea of good planning is to make sound, well-researched public decisions about what constitutes permissible land use with an eye to what measures will improve community welfare for the foreseeable future.

Richard Krimm
Retired, Federal Emergency Management Agency

On the National Archives Building in Washington there is an inscription which reads "THE PAST IS PROLOGUE. " One needs to look back at the reason for the National Flood Insurance Program before starting to look at what the future of the program should be. The intent was to make previously unavailable flood insurance available to residents of floodplains in return for a community' adoption and enforcement of floodplain management in order to reduce future losses from floods. Although the program has had many successes, it also has had some failures. I hope the recommendations from this forum will lead to a better and stronger program.

Everything in the National Flood Insurance Program emanates from the flood insurance maps. These maps provide the information for insurance agents to sell insurance and more importantly provide the tool for floodplain management. However, the manner in which the maps are produced has not changed very much since 1970 when the mapping began in full force. It is of the greatest importance that the Federal Emergency Management Agency's Map Modernization Program be given adequate funding to take advantage of the modern technology available to improve the appearance and availability of the maps. One should be able to pull up a map on a computer and the maps should be able to be changed by a local government as changes occur in the floodplain without a major re-mapping effort. The Federal Emergency Management Agency (FEMA) must make the map modernization program its number one budget priority. I realize the difficulty of convincing the Office of Management and Budget and the Congress of such a large expenditure. It is going to require an extreme effort by FEMA, the Association of State Floodplain Managers, the insurance industry and other interested parties.

I do not recommend a change in the 100-year flood standard because it is an accepted standard by all levels of government. Instead, I would recommend the following:

1. Map for the ultimate development of a community or jurisdiction. That is to show how the floodplain changes when development outside the floodplain occurs. Some states have required this for years. It is a tool for local governments to better guide the development of their communities.

2. Change the program regulations on floodways to a zero rise. It was a major mistake to allow a one-foot rise when we wrote the regulations in 1974.

3. In coastal areas enlarge the velocity zone to take into consideration the effect of erosion, the rise of the oceans, the protection of wetlands and mangrove swamps, and to look at what happens when a beach is eroded or washed out to sea. I hope the recently completed coastal erosion study provides the data to restrict new development in coastal areas.

4. After a significant disaster, immediately re-map the floodplain using modern technology. This is important to prevent a replacement of an area that will be subject to future disasters.

5. I would like to see the flood insurance aspect of the program "red line the floodway and velocity zones for new and rebuilt construction. This means no new flood insurance would be sold in these areas thus discouraging unwise development. This may take an amendment to the Act, which could be difficult. However, it would serve the purpose of not rebuilding in a hazardous area and turning to the Federal Government for assistance again and again. FEMA has already started a similar program with its "repetitive loss" initiative.

6. The program needs to become more environmentally sensitive to the effects the flood hazard maps have on the environment.

Although this is not a problem of the National Flood Insurance Program, I would like to see FEMA and other Federal and State agencies to stop wasting taxpayer's dollars on beach nourishment programs. This policy only encourages unwise development in high hazard areas.

The National Flood Insurance Program is one of the best programs in the Federal Government and to see changes that will make it an even more effective program will be a rewarding experience.

James Sadler, CPCU
Vice President
National Con-Serv, Inc.

It is an honor and a pleasure to be here this afternoon. I thank Director Will for inviting me. It is always a special pleasure when I am able to talk about the NFIP, a Program that I have been dedicated to since 1983. My dedication to the Program is sustained because the NFIP must be among the most successful public/private partnerships ever seen in Washington and that it is doing truly good work while reducing the burden on the taxpayer.

I add my concerns to others who have described the difficulties with terminology referring to one-hundred year and five-hundred year flooding events. It seems as if we have been discussing moving to alternate terminology for almost one hundred years. Perhaps now is the, time we can do something about an alternative.

Fundamentally changing the NFIP must be approached very carefully. I feel that offering the participants of this Forum an opportunity to speak to the matter is evidence that the Director agrees that change must be considered very carefully before action is taken.

The background paper for this Forum states the obvious. The mapping and remapping processes are antiquated and delayed because the funding has not been made available to de what those involved in flood hazard identification know must be done. It seems sensible to know where the hazard is and how it relates to flood insurance before fundamental changes to the transfer mechanism are made.

However, some change may be helpful. Why do we purchase insurance? We purchase automobile liability insurance in many jurisdictions to maintain our driving privileges, or allow us to register and license our vehicles. We purchase life insurance because we either intuitively recognize the risk we expose our family to by not purchasing it or an effective life insurance sales person has explained this to us and we accept it. We may purchase insurance either because we are required to do so or because we recognize the risk associated with not doing so and make the responsible, personal decision to transfer the risk by purchasing insurance.

We purchase hazard insurance on our real property because the mortgagee requires it or that we recognize that we could lose everything if we do not purchase the insurance. Perhaps we purchase hazard insurance because the process of making that purchase hits been institutionalized.

The purchase is required for each real property loan. And yes, if it is not purchased before the closing, the mortgagee will not close the load, and if it is not kept in force the mortgagor will be reminded until a policy is purchased.

On the other hand, the decision-making process involved in requiring flood insurance at closing and requiring coverage to be maintained is not institutionalized. When flood insurance is required and when it is not required may be confusing for many who make process decisions.

With each subsequent sale of a loan, which is accomplished with practically the speed of fight, the requirements become even more uncertain.

Expanding the Mandatory Purchase Requirement to all zones within a participating community would certainly make the decisions easier and begin to institutionalize the processes. Again, to know the true offset of this expansion of the Mandatory Purchase Requirement, correctly identifying the hazard would be helpful.

Premium or rate equity could be considered. Is it fair for a policyholder whose property has sustained several NFIP paid losses to pay the same premium as the policyholder whose property is otherwise identically rated, but has sustained no losses? Perhaps modest actuarially supported premium increases with each loss could be considered. The premium increases would be based non on fault, but on experience. The Repetitive Loss Properties Strategy is the first NFIP program to recognize the connection between multiple losses and increases in the amount a policyholder will have to pay for flood insurance. While the Repetitive Loss Properties law is not yet settled, any possible premium increase would take effect only after a policyholder refuses an offer of voluntary mitigation assistance. This experience rating approach would not violate the NFIP charter to provide previously unavailable flood insurance in flood-prone areas, but it would introduce premium equity to the NFIP.

Again, it is an honor to be here. Thank you.

Frank Thomas
Mitigation Consultant

Placement of Fill in the Floodplain

The NFIP condones placement of fill in the floodplain in two ways: (1) utilizing a Regulatory Floodway Standard that allows placement of fill until a one foot increase in base flood level is reached, a standard that increasingly being called inadequate, and, (2) granting Letters of Map Revision for placement of fill which recognize and approve placement of man-made fill in Special Flood Hazard Areas as a basis for exempting a parcel of land from flood insurance purchase and floodplain management requirements. The latter is bad public policy and should be terminated. Of the two, Letters of Map Revision are the most egregious, like a cancer eating at the foundation of the NFIF.

The impact of fill placement on flood storage at a specific site in the floodplain varies depending upon fill type, size and location, and upon the flood hazard characteristics of the floodplain and its basin. Some placements may have immediate, visible negative impacts on flood water conveyance and ecological conditions on adjacent properties. The impact of other placements may be subtle and less evident. However each placement contributes to the cumulative impact of displaced storage on stream volume, velocity, and sediment conditions which in turn redefine flood hazard and impact floodplain natural resources.

Consider the following adverse consequences of fill placement in the floodplain.

A. Fill reallocates flood storage from the fill site to other locations in the floodplain thereby transferring the flood hazard and altering the risk for other floodplain properties. Significant cost burdens are inequitably imposed on other floodplain property owners and communities who, unaware, accrue the transferred flood risk without receiving protection from or compensation for the additional risk. This is especially true for Letters of Map Revision permitting fill for a large tracts of 10 or more land parcels.

B. The accuracy of existing NFIP Special Flood Hazard Area map elevations is degraded on a site and cumulative basis. FEMA's fees for processing Letters of Map Revision requesting approval for placement of fill in the floodplain do not include adequate compensation to support the future updating of flood hazard maps necessitated in part by reallocation of flood storage. Moreover, FEMA commits large amounts of its limited technical personnel resources and half of its $50 million annual mapping budget to support, and monitor engineering consultants who process 3,000 Letters of Map Revision. Consequently, the number of new maps prepared has been significantly reduced and FEMA must continue to seek funding increases for the map program.

C. The Flood Insurance Fund incurs a significant loss of premiums. Given an estimated annual policy premium of $350, in 1999 approval of 3,000 Letters of Map Revision each removing an estimated 5 land parcels from the floodplain resulted in over $5,000,000 of premium not collected. FEMA's fees for processing letters requesting placement of fill do not provide

adequate compensation for building insurance reserves to cover the risk reallocated to other insured properties. Moreover, property placed on fill has a residual flood risk, which may be shifted in part to disaster assistance programs.

D. Placement of fill in the floodplain disrupts and often degrades natural and cultural resources associated with water supply quality and storage, wildlife habitat, ecological systems, and economic activities such as tourism. While difficult to measure, degradation of these functions can have major local and regional impacts.

E. Enforcement of local government floodplain management regulations, largely required by the NFIP, is weakened by selective fill based exemptions which override local floodplain elevation and siting requirements. In so doing, exemptions discourage local enforcement and undermine the fundamental NFIP statutory responsibility to reduce flood risk and losses by guiding new development away from flood hazard areas.

What Action Should be Taken?

It is necessary and good policy to continue to use letters of map change to correct site data errors that occur in the technical processes of measuring and mapping the flood hazard. In such instances, the source of inaccuracy is FEMA which is legally bound to develop and maintain fair and equitable program standards. Letters of Map Revision allow placement of fill in the floodplain for purposes of land development do not intend to correct inaccuracies, Rather, they act to reduce accuracy. Reversal of current policy to permit Letters of Map Revision based on fill should be initiated immediately.

Primary constituencies supporting fill are land developers, builders, and technical and engineering consultants retained to process map change letters. The consultants are least likely to be negatively affected by a policy change because their expertise would be needed to support an expanded program of updating and making new floodplain maps by redirection of funds now used to support letters of map change. On the side of terminating the fill policy is a less defined set of constituencies who are recently aware of flood hazard and insurance and are concerned about disaster and environmental costs.

A policy change to terminate Letters of Map Revision for fill must assure all program constituents of fair and equitable treatment, and be pursued using full due process of rulemaking. A multi-year approach is needed, beginning in 2000 and concluding with final rule effective October 1, 2003. The process should include widespread public notice, and a period to inform and involve all constituencies in development of a proposed rule including a l2-18 month grand fathering period to allow land developers and builders to obtain Letters of Map Revision for projects in process. Limited grandfathering is essential to winning the political support for this major policy change.

Jerry Uhlmann
Director, Missouri State Emergency Management Agency

Flood Hazard Mitigation Identification

1. *Should the mapping of floodplains based on a higher standard, such as the 500-year standard?*

The 100-year standard, as it is currently determined and applied, does not provide true protection to the one percent flood event. Properly determined and applied, the one percent (100-year flood) standard for most development and redevelopment is appropriate. FEMA may consider requiring critical facilities be protected to the 0.2% event (500-year flood).

2. *How can the uncertainty in hydrology be addressed in the flood maps*?

No Response

3. *Should mapping be based on future conditions, accounting for urbanization and coastal erosion*?

Future conditions should be considered in the identification of flood prone areas, etc. How that is to be accommodated is not within our knowledge base. History, however, tells us that areas once considered as rural with little or no threat of flooding now are severely impacted by flash flooding. Rapid run off from heavy rains resulting in flash flooding has become the major flood threat in this state and accounts for nearly all of the flood related fatalities! Detailed watershed studies taking development into account is urgently needed. Unnumbered A zones must be eliminated and replace with proper documents!

4. *Does the current policy that recognizes levees or removes properties from the floodplain adequately reflect the flood risk*?

Current policy that recognizes levees and removes property from the special flood hazard area based on fill creates a false sense of protection. We know that many levees now "certified" at the 100-year event are in fact marginal regarding protection. Once the Corps of Engineers flow frequency study results for the upper Mississippi and lower Missouri Rivers are released, many 100-year levees will no longer provide such protection - the problem should be addressed at that time. The removal of areas due to fill (LOMR-F) in fact relieves developers from constraints and places them on individual home owners. This practice should cease without delay.

5. *Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the hazard identification and mapping*?

No Response

6. *Are current standards for designating floodways appropriate, particularly the allowance of a one-foot increase in flood stage*?

The one foot increase in flood stage should be eliminated from the process used to identify the regulatory floodway.

7. *Are there methods of identifying flood hazards other than the traditional mapping approach*?

We do not know of a quick or cheap method to accurately identify flood hazard areas. Mapping is the basic tool needed to administer this program. So long as developers believe they can challenge the validity of identified areas, many smaller less sophisticated governments are at a large disadvantage. Modem, accurate maps are essential - we support map modernization. In fact, we have communicated this position to every member of the U.S. Congress from this state!

Floodplain Management

1. *Should a higher standard, such as the elevation to the 500-year flood, be implemented*?

The 100-year standard, as it is currently determined and applied, does not provide true protection to the one percent flood event. Properly determined and applied, the one percent (100-year flood) standard for most development and redevelopment is appropriate. FEMA may consider requiring critical facilities be protected to the 0.2% event (500-year flood).

2. *Should freeboard be required above the base flood*?

Due to the lack of accuracy of current of current flood maps and ever changing conditions, consideration should be given to modifying the National Flood Insurance Program requirements so that new construction has from one to three feet of freeboard above the current base flood elevation. This acknowledges any uncertainties and mapping errors.

Most communities currently includes one foot above BFE in their NFIP ordinances - this should be mandatory given the inadequacies of maps.

3. *Are hazards such as coastal erosion, alluvial fans, coastal flooding, high velocity flooding, and similar hazards adequately addressed in the regulatory requirements*?

No response

4. *What strategies can be developed to encourage communities to adopt hazard mitigation plans or comprehensive plans and policies that steer development out of floodplains*?

A number of strategies could be considered to encourage communities to adopt hazard mitigation in order to steer unwise development from flood hazard areas and to encourage citizens to accept responsibility for their actions. The Community Rating System provides some incentive but not enough. Larger incentives are required to get the communities attention and to take action.

Incentives are usually fiscal. The most appropriate mechanism is the Disaster Relief cost-share or assistance.

A. For individuals, federal assistance for flood losses should be based upon the individual's demonstrated willingness to mitigate the risk. Flood insurance is the best means of accomplishing this. Those living in identified flood hazard areas should not receive financial assistance if a flood insurance policy was not in place at the time of the flood. Additional mitigation grants should be made available to policyholders who take steps to mitigate their flood risk. The premiums on structures with repetitive losses and on those that are not primary residences should reflect the actual risk.

B. For states and localities, programs for flood control structures, nonstructural flood measures, mitigation, and flood disaster assistance should all be based on the same, sliding cost-sharing formula for federal assistance. A minimum cost-share would be made available to all localities but the federal share would be increased for communities and state that engage in disaster-resistance activities exceeding minimum criteria and that are implementing strong mitigation programs. After a flood disaster, Public Assistance under the Stafford Act should be withheld from the damaged floodplain areas of communities not enrolled in (or not in compliance with) the National Flood Insurance Program. The "managing state" concept initiated by the Federal Emergency Management Agency should be used as an incentive to state involvement in and commitment to mitigation, and be expanded to other programs beyond the Hazard Mitigation Grant Program.

C. All taxpayer-funded flood disaster relief should be contingent upon taking flood mitigation action.

D. Much thought and evaluation is needed in these areas. The NFIP is a federal government program with voluntary arrangements with local governments. States must play an ever increasing role in the NFIP if the program is to meet expectations currently as well as far the future. This arrangement allows the collective state governments and their considerable resources to assume the role of "spectator" in the NFIP. Incentives must be put in place to cause the states to participate actively in the program. Perhaps the only means to bring this about is through a fiscal impact. The federal share related to flood assistance could be based on demonstrated NFIP support on the part of a state.

5. *Are there other things the Program can do to increase levels of protection for flood-prone properties*?

Other things the NFIP can do to increase levels of protection are flood maps depicting failure zones of dams, levee and floodwalls, new flood structural measures should be built to the 2% (500-year) chance flood and not to one percent (100-year) chance flood.

In all, too many communities within this country, trailer parks are found in or very near the special flood hazard areas. Many of these parks existed pre-FIRM and elevation requirements, etc. do not apply. In many parks, the trailers are also owned by the landlord with renters occupying the trailer. The NFIP should include a provision that requires mobile home parks to be

posted with clear notice to occupants that a particular park is located within the special flood hazard arm.

6. *What strategies and incentives can help encourage states and communities to foster sustainable development and discourage inappropriate floodplain development*.

For those communities that have joined the NFIP - the ordinances that they are required to adopt – if property enforced cause any new or substantially damaged property to meet elevation requirements. Unfortunately, much of what is found in special flood hazard areas was present pre-FIRM! This program, the NFIP is really only about 30 years old and not a very long time when the history of communities is considered. For many states with a long history of development along the banks of major rivers, these pre-FIRM properties will be with us for many more decades. Consideration should be given to the following new policy or incentives:

A. All NFIP participating communities should be required to develop and adopt comprehensive flood mitigation plans.

B. SBA disaster assistance loans are not available to residents of non participating communities - public assistance - public assistance should not be available to non participant or sanction communities.

C. The National Flood Insurance program needs to go to more of an actuarial rate for policies on repeatedly flooded structures and pre-FIRM structures.

The local and state officials responsibilities and capabilities need to be clarified and strengthened. People should not expect to be bailed out by the federal government after every flood event.

A. Public Assistance should be withheld from the damaged floodplain areas of communities not enrolled in (or not in compliance with) the National Flood Insurance Program. Today there are few, if any, economic sanctions for local governments that fail to participate in the National Flood Insurance Program, even though their failure makes their citizens ineligible for Individual Assistance, federal home loans, and other services. In effect, the individual citizens are penalized, while the municipality continues to get bailed out.

B. Federal financial assistance for flood losses should be based upon the individual's demonstrated willingness to mitigate the risk. Flood insurance is the best means of accomplishing this. Those living in flood hazard areas should not receive disaster assistance if a flood insurance policy was not in place at the time of the flood. Additional mitigation grants should be made available to holders of flood insurance policies on primary residences and commercial structures who take steps to mitigate their flood risk. The premiums on structures with repetitive losses and on those that are not primary residences should reflect the actual risk.

C. The non-federal share of disaster assistance costs should be reduced in communities where state and local efforts are mitigating the flood hazard.

D. Federal assistance for individuals should be based upon whether they had a flood insurance policy before the disaster, even if their property lies outside of the one percent chance floodplain. The total amount of assistance received by an individual should be reduced (or a portion of it converted to loans) to reflect the amount of damage that could have been covered by a flood insurance policy.

E. The Community Assistance Program needs to be revisited because, although it has provided products for the Federal Emergency Management Agency, it has tended to replace state capabilities rather than encourage states to develop more of their own capacity.

7. *What can be done to instill a greater sense of responsibility for states, communities, and citizens for inappropriate floodplain development that puts people and property at risk*?

Normally the incentives that will get the attention of communities and states to encourage sustainable development and discourage inappropriate floodplain development is money. The non-federal share of disaster assistance cost should be reduced in communities where state and local officials have a successful mitigation program. FEMA's Project Impact which developed model "disaster-resistant" communities through public-private partnerships, citizen involvement, planning and multi-hazard and multi-purpose approach to mitigation should be expanded and encouraged.

8. *What strategies can be developed to address the flood risk to structures constructed prior to the NFIP*?

The National Flood Insurance Program needs to go to more of an actuarial rate for policies on repeatedly flooded structures and pre-FIRM structures.

Insurance

1. *Should the mandatory flood insurance purchase requirement be extended to apply outside of the 100-year floodplain? Are there other ways to increase coverage in these areas*?

Flood insurance requirements should apply outside the 100-year floodplain when disaster or insurance claims are made.

2. *Are there methods to improve implementation of the mandatory purchase requirement by federal agencies and lenders*?

We believe, due to inquiries that we receive, lenders are enforcing mandatory purchase requirement adequately.

3. *Are there ways to ensure that once purchased, flood insurance policies remain in place*?

This issue can be improved in a number of ways:

A. First of all, change the database to track properties by parcel ID numbers instead of names and addresses

B. Create incentives on the part of agents such that they place as much emphasis on flood insurance and policy renewals as they do for other lines of insurance.

C. Flood insurance should be mandatory to receive disaster benefits.

4. *Are there ways to increase insurance coverage to buildings not subject to the mandatory purchase requirement*?

Flood insurance should be required as a prerequisite to receive any type of disaster assistance.

5. *Should flood insurance be required behind levees*?

Properties in protected areas behind levees should be subject to the same mandatory lender requirements with the rates based on residual risk.

6. *Is the current flood insurance rating model sufficient, or are there other methods to rate the flood risk*?

No Response

David R. Conrad
Water Resources Specialist
National Wildlife Federation

On behalf of the National Wildlife Federation, the nation's largest conservation education organization with over 4 million members and supporters and affiliate conservation organizations in 46 states and territories, I greatly appreciate the opportunity to participate in FEMA's Floodplain Management Forum. Improving the nation's floodplain management has been a longstanding interest and high priority of the Federation and many of the nation's conservation organizations.

We are most pleased that FEMA and Director Witt have established this Forum to address the NFIP and the nation's approach to floodplain management.

For much of the past century, the federal government has approached the problem of flooding largely through structural- means - building dams, levees, floodwalls, channelizations, jetties and using other means to modify the natural flow fluctuations of rivers, streams, and coastlines. Conservationists have had major, ongoing concerns about the environmental damage that has been brought on by many structural projects. Many of these projects have resulted in significant habitat losses and major declines in water-dependent species. In addition, this approach has been extremely costly.

For instance, in current dollars the Army Corps of Engineers has spent over $100 billion on flood control projects - mostly since the late 1940's. Other federal agencies and local public works agencies have spent untold billions more. We find that while many of these projects have prevented significant flood damages, they have also created a false sense of security. Many communities have continued to build in floodplains only to experience catastrophic losses when large floods come. During the 20th century, we have witnessed an alarming rise in national flood damages that has grown from approximately $2 billion annually (current dollars) early in the century to an all time high of $5 to $8 billion annually during the 1990's, according to National Weather Service records.

We applaud FEMA's new emphasis on hazard mitigation and its substantial success in supporting voluntary buyouts of floodprone properties. This has begun to reverse past trends of a repeated flood-pay-flood-pay cycle identified in a National Wildlife Federation study in 1998 called Higher Ground. To date the HMGP program has supported some 21,000 voluntary property buyouts, mostly since the 1993 Midwest Flood.

The heavy emphasis on structural flood control, even when combined with the land use and building controls of the current NFIP, have not adequately turned the tide on flood damages. Changes in the nation's approach to managing flood risks and protecting floodplain functions and related natural resources are clearly needed. We must recognize that with wise management, floodplains can provide valuable natural and cultural services and functions to our communities, and we should explore ways to manage these areas more often as open spaces that can serve communities without being subject to high risk to lives and property.

FEMA is in a unique position to help provide new direction to make such changes. We would suggest the following-.

Flood Hazard Identification

From the beginning of the NFIP, it was recognized that the 100-year standard was a " compromise." The standard was intended to represent a minimum that communities would be encouraged to exceed. Yet unfortunately, many communities have viewed this standard as the "maximum." Due to the manner in which the standard has often been applied, much new development and building reconstruction has proceeded with structures that are at much greater risk than was intended by the 100-year standard.

FEMA should encourage all communities to identify and manage development, particularly critical infrastructure and facilities, to be located outside 500-year (2% chance) flood areas. We would urge FEMA to consider raising the NFIP program standard generally to a higher level than the 100-year level, perhaps the 500-year flood level, where practicable.

In the interim, we would recommend that FEMA take the following steps to better implement the present 100-year standard:

- Establish a no-rise, no-impact floodway instead of the current one-foot rise floodway. This should include a requirement of no or de minimus impact on surface elevation or velocity. A number of states have already taken important steps in this direction.

- Move forward rapidly on the flood map modernization initiative. Outdated and inaccurate maps undermine every aspect of the NFIP and floodplain management. Base flood maps on future condition hydrology.

- Identify all flood-related hazards on flood maps, including dam and levee failure zones, shoreline erosion zones, high-velocity flooding and alluvial fan areas.

- Apply the mandatory flood insurance purchase requirement to areas in natural floodplains below dams and behind levees to provide coverage for residual risks associated with failure of structural flood control projects.

Floodplain Management and Insurance

Fundamentally, the federal government has assumed too much of the total responsibility for flooding problems. Federal policies should be adjusted to foster much greater sharing of responsibility with state and local governments and individuals. Many elements of floodplain policy promote rather than discourage building in floodplains, and as a result fail to protect the natural services provided by these special areas. In the NFIP, built-in subsidies and cross-subsidies have sent the wrong economic signals, have failed to discourage high-risk development, and have left the program in a chronic, financially precarious state. We would recommend the following:

- Make a concerted effort to set flood insurance rates on an actuarially-sound basis. Eliminate cross-subsidies within zones, phase out pre-FIRM subsidies, phase out grandfathering when maps are revised and subsidies for non-primary residences, incorporate erosion risk into rate-setting, adjust future rates to actuarial levels when substantial damage or substantial improvement occurs, plan for catastrophic loss contingencies.

- Require a 1-3 foot freeboard for new construction above the current base flood elevation. This would help to account for the significant risk and uncertainty associated with flood height prediction.

- Educate and encourage communities to protect the natural and beneficial functions of floodplains. Many communities have begun to affirmatively plan their floodplains for multiple objective management, such as greenways and open space, parks and recreation, fish and wildlife refuges, wetlands, trails and bikeways, agricultural areas, and vegetated buffers to protect water quality. Such uses are key tools in addressing problems of urban sprawl.

- Support a substantial initiative to address repetitive losses. The National Wildlife Federation strongly supports H.R. 2728, the "Two Floods and You Are Out of the Taxpayers Pocket Act" to provide additional funds for hazard mitigation of repetitive loss properties.

- Begin to incorporate measures identified in the Community Rating System as standard requirements for community NFIP participation. For the past two decades, community participation requirements have remained essentially static. The CRS identifies the best floodplain management practices, and provides a strong basis for improving standards generally.

- Require setbacks for new construction in coastal erosion areas, set rates on a true actuarial basis, and require regulation of erosion hazards. Coverage should be denied in highest risk locations.

- Halt issuance of Letters of Map Revision for placing fill in floodplains and for river channelizations to circumvent the NFIP mandatory purchase and land use and building code requirements.

- Improve coordination between FEMA Disaster Assistance programs and the NFIP. Other Programs and Policies

Other Programs and Policies

Overall, the National Wildlife Federation urges FEMA to take the lead in bringing together all of the federal agencies and departments with interest in floodplain management to formulate a more consistent and comprehensive strategy to encourage wise management of floodplains. The efforts thus far by FEMA and Director Witt to alert the public to the importance of taking much more responsibility for floodplain management has been and continues to be invaluable to the nation.

While it is impossible to list all relevant programs here, we recommend in particular two immediate priorities:

- Revitalize the Interagency Task Force on Floodplain Management. This body could serve as a coordinating entity for developing comprehensive strategies and improved federal policies.

- Issue a Revised Floodplain Management Executive Order. This was a key recommendation of the Galloway report, and could make a significant contribution to bringing federal agencies together in improving floodplain policies.

Attached are additional items reflecting Federation priorities regarding floodplain management and the NFIP.

Once again, we appreciate the opportunity to participate in the FENM Floodplain Management Forum, and look forward to a productive discussion.

Floodplain Management

- FEMA must amend policies and programs to discourage future growth and development of floodprone areas, and continue to emphasize non-structural approaches to flood control over structural measures.

- Tie disaster relief and other Federal funds to participation and compliance in the National Flood Insurance, Program (NFIP).

- FEMA should take the lead to establish a task force with other Federal agencies to coordinate, flood plain policies among a range of Federal programs.

- Require local hazard mitigation plans to be tied into overall comprehensive master plans.

- Educate and encourage communities to protect and manage floodplain areas for open space and recreation.

- Increase community awareness about flood risk. Describe 100-year floodplain as areas of " high flood risk", and areas within the 500-year floodplain as "moderate flood risk".

Insurance

- Revise flood insurance rates to be, realistic and account for repetitive losses.

- Require rates to accurately reflect risk to individual properties by proximity to the hazard and by the class of structure.

- Establish new and concise standards for determining the substantial damage/substantial improvement rule. New standards should calculate damage over time, and use the fair market value over the replacement value of the structure.

- Adopt a policy of a "no-rise floodway" with a requirement of no impact on water surface and velocity for new construction.

- Require a minimum of at least one to three feet of freeboard for structures located in the 100-year floodplain.

- Stop the abuse of Letters of Map Amendment (LOMAs). Areas with LOMAs should not be exempt from flood insurance. The NFIP should maintain its mandatory purchase requirement in areas with, natural flood hazards, regardless of the additional fill and stream channelization. Instead, base insurance rates for these areas on residual risk.

- Deny NFIP coverage for new structures seaward of the 30-60 year erosion zones, depending on the type of construction and portability of structures, regulate erosion hazard, and require true actuarial rates that reflect the erosion factor.

- Require mortgage companies to provide notification of mandatory NFIP purchase requirements when lending to repetitive loss properties.

Flood Hazard Identification

- Ensure the accuracy and availability of NFIP claims data, as well as the location and number on the overall number of flood-prone structures across the Nation.

- Base Flood Insurance Rate Maps (FIRMS) on projected, not current, conditions of development (with the exception of areas where no increase in post-development runoff is permitted).

- Reevaluate all areas with aging structural flood control measures for risk and capacity, and update FIRMs accordingly. Require insurance for residual risk.

- FIRMS should be expanded to identify the 500-year floodplain, and all hazards, including coastal erosion, high velocity floods, and alluvial fans, and indicate failure zones for structural measures.

Other Programs and Policies

- Support legislation to create major acquisition and relocation programs for repetitive loss properties.

- Amend E.O. 11988 to go further in promoting non-structural floodplain management and the restoration of the natural and beneficial functions of floodplains.

- Recognize the economic benefit of natural and cultural resources in Benefit Cost Analysis.

Floodplain Natural and Beneficial Functions and Flood Loss Reduction

Jon Kusler
Executive Director,
Association of State Wetland Managers

How can FEMA and other agencies better reduce flood losses while, simultaneously, protecting floodplain natural and beneficial functions?

I'd like to share some summary thoughts on three topics based upon my experience over the last three decades with flood loss reduction and floodplain management, wetland protection and restoration, stream protection and restoration, and broader watershed and land management programs: "Why will protection and restoration of floodplain natural and beneficial functions reduce flood losses? Why do existing flood loss reduction efforts fail to protect natural and beneficial functions? What measures could FEMA, other federal agencies, states and local governments take to simultaneously better reduce flood losses and protection floodplain natural and beneficial functions?

Why will protection and restoration of floodplain natural and beneficial functions reduce flood losses?

Efforts to protect floodplain natural and beneficial functions can also reduce flood, erosion, and wind (hurricanes) losses for three principal reasons.

1. ***Efforts to protect and restore floodplain natural and beneficial functions can keep flood loss prone activities out of the floodplains and relocate these activities to safer areas***.

Multi-objective programs to protect and restore natural and beneficial functions by limiting and removing floodplain and floodway development can also reduce flood, erosion, and wind losses (hurricane). These include local, state, and federal greenway development, park acquisition, wetland regulation, wetland restoration, stream restoration, and other floodplain resource protection and restoration programs. Such efforts can not only reduce losses for residential, commercial, and industrial development in hazard prone areas but also reduce flood-related damage to roads, sewers, water supply systems, and other infrastructure which serve such development.

2. ***Multi-objective efforts can increase the political support for flood loss reduction measures.***

Multi-objective floodplain management programs such as Tulsa's program can increase the political support for flood loss reduction by providing benefits such as recreation, water quality protection, bird watching, and ecotourism. Local citizens may be motivated to implement multi-

objective efforts in the predisaster planning context rather than reacting after disasters when the damage has occurred and public concern for flood losses is high.

3. ***Multi-objective efforts can increase the funding support for flood loss reduction measures***.

Multi-objective efforts can tap grants, bond issues, and other sources of funding for water quality protection and restoration, recreation, wildlife, and endangered species as well as flood loss reduction.

Why do existing flood loss reduction fail to protect natural and beneficial functions?

Existing flood loss reduction efforts including the construction of flood control structures, drainage, channelization, and some types of flood plain regulation fail to protect natural and beneficial functions for a variety of reasons:

1. Floodplain managers often fail to consider natural and beneficial functions because of lack of explicit natural and beneficial function protection and restoration goals in flood loss reduction programs.

2. Flood loss reduction and natural and beneficial function programs have been established by separate enabling statutes and have separate funding and staffs which discourages integration and cooperation.

3. Floodplain managers attend floodplain conferences, read floodplain newsletters, and communicate with other floodplain managers; wetland, water quality, wildlife, and other managers with responsibilities related to natural function and values do the same with little exchange of information across professions.

4. Most structural approaches to flood loss reduction have severe impacts on natural and beneficial functions.

5. Model flood loss reduction ordinances and rules allow (and in some instances encourage) development in wetlands and other flood fringe areas.

6. Flood regulatory and disaster assistance subsidies often favor development or redevelopment without consideration of natural and beneficial functions.

7. Many local governments and landowners continue to be only familiar with the concept of an "engineered" flood loss reduction project with structures and concrete rather than multi-objective greenway or other approaches to both reduce flood losses and protect and restore natural and beneficial functions.

8. Inadequate dissemination of information and training has taken place for flood loss reduction personnel with regard to protection of natural and beneficial functions; the same problem occurs with wetland, stream management, and other resource management personnel with regard to flood hazards and flood plain management.

What measures could FEMA, other federal agencies, states and local governments take to better reduce flood losses and protection floodplain natural and beneficial functions?

Some priority measures include:

1. Federal agencies, Congress, state agencies and legislatures, and local governments should include explicit protection and restoration of natural and beneficial function goals in flood loss reduction statutes, regulations, and ordinances. A no net loss of function goal should be adopted. Many floodplain managers will continue to overlook or ignore natural and beneficial functions without adoption of such goals.

2. Federal agencies and the Administration should adopt a strengthened floodplain management executive order. This Order should more clearly recognize natural and beneficial functions and discourage further development in the floodplain.

3. FEMA should aggressively promote and reflect the benefits of protecting natural and beneficial functions in FEMA's Community Rating System and Project Impact Program through additional guidance and strengthened incentives.

4. FEMA, the Corps, USGS, NRCS, EPA, NOAA, Fish and Wildlife Service and other federal and state agencies should encourage professional organizations representing flood loss reduction experts and managers and wetland/stream experts and managers to jointly distribute information concerning flood loss reduction and protection/restoration of natural and beneficial functions including wetland/stream restoration as part of outreach and training sessions including conferences, workshops, symposia.

5. FEMA, the Corps, EPA, USGS, NRCS, NOAA, Fish and Wildlife Service and other federal and state agencies should provide training and information concerning natural and beneficial functions to flood loss reduction staff. They should also, conversely provide training and information concerning floods and other natural hazards to wetland regulatory, wetland restoration, stream restoration, and other personnel.

6. FEMA, other federal agencies, and states should modify model flood loss reduction ordinances to recognize the importance of natural and beneficial functions and provide a zero rise goal for floodplains.

7. FEMA, the Corps, EPA, USGS, NRCS, NOAA, Fish and Wildlife Service and other federal, state, and local agencies should continue to support relocation of repetitively damaged structures. Protection and restoration of natural and beneficial functions should be made more explicit goals of such relocation and restoration programs.

8. FEMA, the Corps, EPA, USGS, NRCS, NOAA, Fish and Wildlife Service and other federal, state, and local agencies should more actively encourage communities to prepare disaster

mitigation plans which protect and restore natural and beneficial functions in both pre and post flood planning contexts.

9. FEMA, the Corps, EPA, USGS, NRCS, NOAA, Fish and Wildlife Service and other federal, state, and local agencies should reflect geologic as well as hydraulic and hydrologic parameters in floodplain mapping. They should also assess and map or otherwise designate floodplain areas serving particularly important natural and beneficial functions such as wetlands, rare and endangered species habitat, flood storage, erosion control, pollution control, fisheries, and recreation.

Evaluation of Erosion Hazards
Summary

William Merrell
President, The Heinz Center

Driven by a rising sea level, large storms, flooding, and powerful ocean waves, erosion wears away the beaches and bluffs along the U.S. ocean and Great Lake shorelines. Erosion undermines waterfront houses, businesses, and public facilities, eventually moving the shoreline inland, erosion also brings nearby structure ever closer to the water, often putting them at greater risk than either their owners or insurers recognize.

Over the next 60 years, erosion may claim one out of four houses within 500 feet of the U.S. shoreline. To the homeowners living within this narrow strip, the risk posed by erosion is comparable to the risk from flooding, especially in beach areas. The National Flood Insurance Program (NFIP), however, does not map erosion hazard areas to inform homeowners of the risk they face, nor does it directly incorporate erosion risks into its insurance ratemaking procedures. Both of these shortcomings can be remedied.

Congress debated erosion management legislation during the early 1990's, but could not reach agreement on a course of action. Depending that more information was needed, Congress passed Section 57 of the National Flood Insurance Reform Act of 1994 (P.L. 103-325), which requested an analysis of a series of possible policy changes to address erosion hazards within federal programs.

This report, by The H. John Heinz III Center for Science, Economics and the Environment, is a response to that mandate. The goal of the study is to improve understanding of he impacts of erosion and erosion-related flooding on the NFIP, other federal programs, and coastal communities. The report makes two recommendations, shown in Box A

Box A. Recommendations

Congress should instruct the Federal Emergency Management agency to develop erosion hazard maps that display the location and extent of coastal areas subject to erosion. The erosion maps should be made widely available in both print and electronic formats.

Flood Insurance rate maps do not inform current and prospective coastal property owners of erosion risks. Without such information, state and local decision makers and the general public are not fully aware of the coastal hazards they face, nor do they have this information available for land-use planning and erosion hazard mitigation. This expenditure is likely to be cost effective.

Congress should require the Federal Emergency Management Agency to include the cost of expected erosion losses when setting flood insurance rates along the coast.

Despite facing higher risk, homeowners in erosion-prone areas currently are paying the same amount for flood insurance as are policyholders in non-eroding areas. FEMA should incorporate the risk from erosion into the cost of insurance along the coasts. Otherwise, other NFIP policyholders or taxpayers will have to subsidize what is likely to become a substantial cost. Using maps such as those recommended above, rate increases could be confined to the highest-risk eroding regions. Alternatively, more modest rate increases could be spread across a larger "Coastal High Hazard Zone" that includes both the highest-risk flood and eroding regions.

The complete "Evaluation of Erosion Study" report is available at www.heinzcenter.org.

Remarks by Jo Ann Howard
Federal Insurance Administrator

Thank you for that introduction. Director Witt and Associate Director Armstrong, I know I speak for many people at this forum -- and across this country -- when I thank you for the exceptional leadership you have displayed in changing the way Americans think about disasters.

It is my particular honor to recognize the presence at this conference of Dr. Gilbert White. He is one of the select few figures of the 20th Century whose careers will be understood by historians to have fundamentally reshaped -- and renewed -- life in the United States.

I am also here to talk about a fundamental reshaping -- and renewal -- one of our national ideas about floods. As it does today, the last fundamental reassessment of flood management occurred at the dawn of a new century. One hundred years ago, the solution was structural. Floods were managed by erecting dams. The policy was one of high stakes and hard choices. When dams broke, bottled-up waters raged -- and routed -- even more fiercely. Even when dams held, their operators faced the wrenching calculus of sinking some communities for the sake of saving others. Meanwhile, this structural approach has, for too long, pitted protection of the environment against protection of our people when we know the two must work hand in hand.

If flood policy at the dawn of the last century was one of terrible choices, our approach at the dawn of this new millennium can be one of terrific choices. In his lecture last year, Gilbert White -- who more than anyone else has lived the last century of water policy -- called for moving our focus from loss prevention to the beneficial uses of the flood plain. By taking a holistic view of flood plain management -- focusing not just on the reduction of loss, but the renewal of land and the stewardship of resources -- we can craft a policy whose payoffs are protection and possibilities alike.

Flood policy has typically been the province of emergency managers. But it is not a discrete field. Decisions made in areas ranging from transportation to the environment to economic development have a substantial impact on the flood plains -- and flood plain decisions, in turn, have a substantial influence on these spheres of policy. Neither flood plains nor flood waters respect the territorial boundaries that divide government agencies or academic disciplines. Each of these areas -- and more, from preserving habitats to protecting homes -- must work in tandem.

They must work in tandem first and foremost because a holistic view of flood plain management -- one focused on the beneficial use of the flood plain -- is our best tool for protection. But it is, in equal measure, our most effective agent for possibilities.

The beneficial use of flood plains means preserving the open space that makes communities more beautiful. It provokes effective zoning and planning that makes neighborhoods more livable. It triggers creative thinking about the flood plain -- like grasses that absorb flood waters and generate biofuels -- creative thinking that both saves money and creates wealth.

The seeds of this new approach to flood policy were planted in 1968 with the creation of the National Flood Insurance Program. Its mission was to reduce the cost of floods to taxpayers. Measured against that goal, NFIP has been an unqualified success. We are saving taxpayers an estimated $1 billion a year in flood costs. The program has reduced flood damages to individual buildings by 77 percent. Perhaps more compelling than those hard metrics is this hard fact: By creating an incentive to reduce flood losses, the NFIP has woven disaster resistance into the fabric of community decisions.

Today, insurance -- which remains a powerful financial incentive -- is still the natural launching pad for a new approach to flood plain management.

Why do we need a new approach? For several reasons. The number and severity of catastrophic weather events is climbing. Riverine flood damage now exceeds $5 billion a year. Thoughtful people have asked whether the availability of insurance is providing comfort -- and, therefore, a catalyst -- for building in harm's way.

We are interested in all these questions. But most important, we believe self-evaluation is far more important than self-congratulation.

That's why we have undertaken a comprehensive evaluation of our program and its impact on floodplain management in the United States. Rarely in government do we have the luxury of looking over the mountaintop and not at the pebbles beneath our feet. We are doing that through this review. We have issued a nationwide call for information, ideas and input in six basic areas.

First, what is the state of occupancy and use of flood plains -- and how is the NFIP affecting both issues?

Second, what are the costs and consequences of flooding -- measured not just in economic terms, but in environmental and social ones as well?

Third, how effectively do our insurance rating and indemnity functions operate? We are interested in whether the policies we offer support our goal of flood plain management, how we can risk rate NFIP policies more simply, and more.

Fourth, how has the NFIP influenced local decisions on floodplain management? The premise of the program is an exchange of federal benefits for local controls. We want to know whether and how that quid pro quo is working.

Fifth, we are reviewing our systems for hazard identification and risk assessment. This includes the accuracy of flood maps and other risk information, how they are used and whether more detailed maps could be financed.

Finally, how effectively does NFIP communicate with the public?

By the time of the Natural Hazards Center meeting in Boulder, we hope to have let a contract to develop the methodologies and approaches to explore these questions. This will be followed by

a separate effort to address the various questions, utilizing the expertise of independent experts, under an overall coordinating mechanism. I look forward to hearing your ideas today as well. And in addition to your input, I also ask for your patience. In insurance more than any other field, the basis of good ideas is good information. And if we want good information, we need time. Compiling the data alone could take two years. The entire evaluation process could take as many as five.

I close with this thought: Wherever you believe the perfect approach for our floodplains lies, the practical approach will not be found in the extremes. We cannot afford for this opportunity to be stifled by extreme opponents of development or extreme opponents of environmental protection. The best policy will come from the facts, not the fringes.

Here are a few facts to start with. First, as a matter of simple arithmetic, there will be new development. Our population is growing and our land is not. Second, we are not going to move Americans away from water -- nor will we simply dictate by policy fiat how they use their land. Ownership of land -- and an affinity for the water -- are bound up in the American way of life as intricately as water is bound up in life itself.

But the following facts are equally compelling: If we build wholesale in floodplains, property will be destroyed, people will be hurt and the price tag will be enormous. If we degrade the environment, we will bring about more weather events and erode our natural protection against those that occur.

Lastly, whatever approach we take to flood plain management must be a partnership between all levels of government and the private sector. Washington cannot dictate local land use decisions and, in my view, it should not try. Some of the most innovative ideas in flood plain management are being generated at the state and local level. At the national level, we need to lead, but we also need to listen.

By leading our country and listening to our constituents, we can complete the cycle of history that began, a century ago, with the last reassessment of flood policy. That policy was one of terrible choices. Together, we can replace those terrible choices with terrific ones. By focusing on the beneficial use of the flood plain, we can reduce losses -- but also renew land. A holistic approach to managing our flood plains can be a tool of protection -- and, in equal measure, an agent of possibilities. I look forward to hearing your ideas on how to reach both goals.

Thank you.